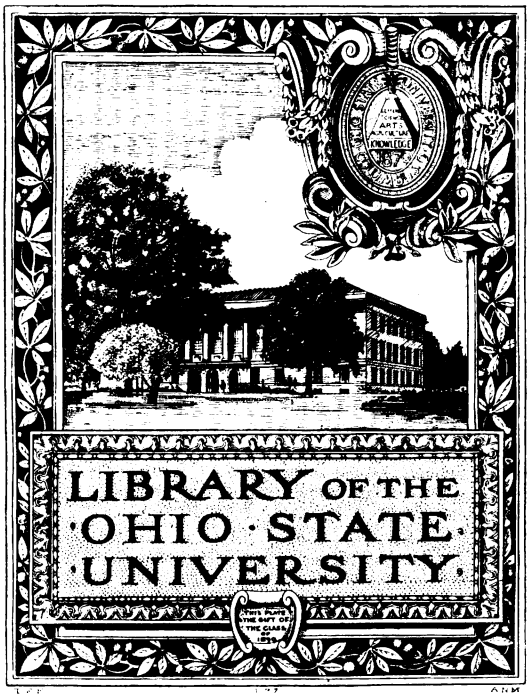
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SPECVLVM MUNDI.

OR

A GLASSE REPRESENTING THE FACE OF THE WORLD;

Shewing both that it did begin, and must also end: The manner How, and time When, being largely examined,

WHEREUNTO IS JOYNED an Hexameron, or a serious discourse of the causes, continuance, and qualities of things in Nature; occasioned as matter pertinent to the work done in the six dayes of the Worlds creation.

The second Edition enlarged.

Aug. in Ser. de Ascen.

Qui se dicit scire quod nescit, temerarius est.
Qui se negat scire quod scit, ingratus est.

Printed by ROGER DANIEL Printer to the *Universitie* of *Cambridge*.
Anno Dom. 1643.

TO

THE MOST NOBLE

AND ILLUSTRIOUS

IAMES

Duke of *Richmond* and *Lenox*,

Earl of *March*, Baron of *Setrington*, *Darnley*, *Terbanten*, and *Methven*, Lord Warden of the Cinque Ports, &c.

Knight of the most noble Order of the Garter, and one of his MAJESTIES most honourable Privie Councel:

IOHN SWAN,

by continuing the Dedication of this unworthy Work, wisheth the continuall increase of his Graces Renown upon Earth, and Happinesse in Heaven hereafter.

¶ 3

To the Reader.

Gentle Reader,

THat curteous entertainment which this book hath hitherto found, causeth it to come again abroad; as older, so a little larger: not doubting but that men of candid sincericie will be readie, not onely to give it a friendly welcome, but also to drive away those two immortall enemies, which continually besiege and assault every good Labour, I mean Curiositie and Envie. The first whereof is harboured in the breasts of those, who (though hard to please) are crediblie supposed to be more nice then wise. The other, a restlesse wretch; yet fearlesse enough to them which know her: onely the worst is, like a filthie flie she seeks all over the body for a soare, and where she cannot find, she

makes one. I wiſh to be as free as I can from the reach of theſe Readers, committing my poore endeavours to the uſe of ſuch as are more worthy of their mean ſervice. For although I go not about to teach the Learned, yet the Ignorant may be inſtructed in what before they knew not; yea, and the Learned alſo may be occaſioned to call again to mind ſomething which (for the preſent) hath either ſlept or ſlipt their memories by reaſon of their better thoughts, and deeper contemplations. Take therefore in good part what's thus intended towards thee: So ſhall my pains not quite want their recompence, Nor thy ſelf be branded with that filthie mark of foul Ingratitude.

Farewell.

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CHAP. III.

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Parag. 3

Parag. 3. *Of Fierie Meteors, such as are said to be pure and not mixt. This paragraph hath thirteen Articles.*

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3. Of I

3. *Of Dew.*
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Unto

Unto which Section, an Appendix is joyned: & it concerns strange properties in certain Wells, Waters & Fountains.

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Sect. 4. *Of the Sprouting, Springing and Fructification of the Earth: wherein the varietie and virtues of sundry Hearbs and Trees, are largely discovered, according to the best Authours.*

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Sect. 1. *An entrance towards the discourse of the Stars and Lights.*

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1. *That the Stars consist most of a Fierie matter, and are cherished by the Waters above the Heavens; as was mentioned,* Chap. 4.
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2. *Of the Starres twinkling, and Sunnes dancing.*

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Parag. 3. *Of that other office, wherein the Starres were made (as it were) heavenly clocks. This hath three Articles.*

1. *Of Seasons; as Spring, Summe, &c.*
2. *Of Dayes and their kindes, &c.*
3. *Of Years and their kindes.*

CHAP. VIII.

THe eighth Chapter concerneth the creatures made in the fifth day of the world; viz. *Fish, and Fowl. This Chapter hath two Sections.*

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Sect. 2. *Of the names, kindes, & properties of Fowls; with many & sundry emblemes drawn from most of them.*

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THe ninth Chapter concerneth the creatures made in the sixth and last day; being such creatures as live neither in the Aire or Water, but upon the Earth. This Chapter hath likewise two Sections.

Sect. 1.

Sect. 1. *Of Beasts, their properties, names, kindes, &c. together with sundry emblemes drawn from many of them.*

Sect. 2. *The creation of Man, being created male and female, and made according to the image of God: together with the institution of Marriage, and blessing given to that estate, as also the time of Adams fall, and of the long lifes of the Patriarchs.*

CHAP. I.

Wherein is shewed that the world neither was from eternity, nor yet shall be extended to eternitie; but that it had both a beginning, and shall also have an ending: wherein also is considerable how that ending shall be; as also the time when is largely examined.

SECT. 1.

That the world began, and must also end.

THe Philosophers of ancient times were diversly transported in the stream of their own opinions, both concerning the worlds originall and continuance: some determining that it once began; others imagining that it was without beginning, and that the circled orbs should spin out a thred as long as is eternitie, before it found an ending. Plato could say that it was, *Dei Patris ad genus humanum epistola*, an epistle of God the Father unto mankind; and that God was, Δημιουργὸς, ποιητὴς, καὶ πατὴρ τοῦ ὅλου, the Creatour, Maker, and Father of the whole universe. But * Aristotle sticked not to affirm that the world neither began, nor yet shall end. Yet this his opinion, himself being witnesse, was nothing else but a Paradox; and (as without wrong to him may be affirmed) he maintained it rather by way of contradicting others, then for any desire

Plato in Timæo.

* *Lib. 1. de cœlo, cap. 10. 12. & lib. 2. c. 1. lib 8. Phys. & lib. de gen. & cor.*

desire of truth, calling it *Problema topicum*, as in the first book of his Topicks, chap. 9. is manifest; and as in *that book written in his old age to King Alexander the Great, he also confesseth. This therefore made * one say, that it was not so much a logicall question, as a thesis or position which Aristotle held and maintained: whose reasons some have called* *vain sophistications to obscure the truth, having more wit then matter in them*: and may again be answered by more solid arguments then he alledgeth. For that the world had both a beginning, and must also have an ending, even reason it self, although there were no Scripture for it, is sufficient.

* *Lib. de mundo.*

*Pareus on Gen.

*Inanit sophismata ad obscurandam veritatem, ingeniose magis quam solidè excogitata. Pareus ibid.

As first, If the world were eternall, then there would be some memorie given us of the generations of men more ancient then that which Moses mentioneth: but there is none given us; for all other histories are but late in respect of the sacred storie: which is an evident argument, not onely against the eternitie of the world, but also against the fables of the Egyptians, Scythians, and Grecians, concerning their ancientnesse, and the ancientnesse of their acts and deeds of fame.

For indeed (omitting their palpable fictions) when Ethnick writers tell us of any ancient thing, it is either concerning the Thebane or Trojane warre; of *Cecrops*, of *Inachus*, of *Ogyges*, *Deucalion*, or *Janus*; of *Ninus*, or his father *Belus*, or of the warre of the giants, striving to heap mountain upon mountain that they might pull the gods out of heaven. Now all these were either about the dayes of the Judges, Moses, Abraham, or Noah at the furthest. For to whom did they allude by their *Janus* with two faces, but to *Noah*, who saw the times both before and after the floud? Or whom did they point at by their *Gigantomachia*, when, *Pelion* (forsooth) must be set upon *Ossa's* back, and all thrown down with a thunder-crack; whom (I say) did they point

point at, but *Nimrod* and his company, or those who built the tower of Babell, and had their languages confounded for it?

That of the Poet is therefore pertinent, *Lucret. lib. 6.*

——— Si nulla fuit genitalis origo
Terrarum & cœli, semperque æterna fuere:
Cur supra bellum Thebanum & funera Trojæ
Non alias alii quoque res cecinêre Poetæ?
Quò tot facta virûm toties cecidêre? nec usquam
Æternis famæ monimentis insita florent?

If that the heavens and earth did not begin,
Had no creation, but remain'd from aye;
Why did not other Poets something sing
Before the Thebane warre, or fall of Troy?
What are become of great mens many deeds?
They could not die,
But would remain unto posteritie.

Secondly, thus it may be also proved; All things which are to us conspicuous, consisting of matter and form, are of themselves frail and fading, having such a nature, that they either are or may be subject to corruption; but such is the world: and therefore as in respect of its essence it is finite; so likewise in respect of time it cannot be infinite, but have both a beginning and an ending. For first that is properly eternall, which is altogether incommunicable, or which is without beginning, mutation, succession, and end: and such onely is God, and not the world. Secondly, it cannot be denied but that there is the same reason of the whole which is of the parts; so that if the parts of the world be subject to corruption, then must likewise the whole world also: but the parts are (as we daily see) and therefore the whole.

But leaving reason, we have a rule beyond it, which is the rule of faith; whose first assertion makes it plain

that the world began; and that Time (by which we measure dayes, weeks, moneths, and years) hath not been for ever. For, *In the beginning* (saith Moses) *God created the heavens and the earth:* and why is it said, *In the beginning he created,* but that it might be known (especially to his Church) that the world was not from everlasting?

Gen. 1. 1.

Divinely therefore did *Du Bartas* sing, as in the sound of *Silvester* we have it,

Du Bartas first day.

Clear fire for ever hath not ayre embrac't,
Nor ayre for aye environ'd waters vast,
Nor waters alwayes wrapt the earth therein;
But all this ALL *did once of nought begin.*
Th' immutable divine decree, which shall
Cause the worlds end, caus'd his originall.

Which whosoever shall deny, he doth but betray his misery; either because he wants Gods holy word to be his rule, or else because he disdaineth to be ruled by it.

How great a priviledge then is that which even the poorest Christian hath above the greatest and most wise Philosopher! And as for the scoffing Atheist, whose peevish and perverse opinion leads him up and down in an affected cloud of ignorance, disdaining to have faith, because he scoffeth at the rule of faith; it is no more then thus with him, he kicks against the pricks, and cannot therefore escape away unhurt. For, *Sequitur injustos ultor à tergo Deus*; God, as a revenger, follows at the heels of a sinner,

Which many thousands now can witnesse well,
Whose faults with woe recanted are in hell.

Sect. 2.

The manner of the worlds ending is shewed.

But concerning the worlds ending, here fitly may arise this question, *viz.* Whether it shall be destroyed according to the substance, or according to the qualities.

1. If

1. If it be destroyed according to the substance, then it must be so destroyed, as that nothing of it be remaining.

2. If it be destroyed according to the qualities, then it shall onely be purged, the substance still abiding.

Now of both these opinions there can be but one truth; which I verily think to be in the latter of them. For although it be said in S. Peter, that* *the heavens shall passe away with a noise, and the elements shall melt away with heat. &c.* yet it is not so farre forth to be understood, as that in their substances they shall be quite burnt up; but rather that they shall be purified in their vicious qualities, which the vanity of sinne hath laid upon the model of the whole world. And this S. Paul points at when he saith, that* *the creature it self shall be delivered from the bondage of corruption into the glorious liberty of the sonnes of God. For we know* (saith he) *that the whole creation groneth & travaileth in pain together until now.* And again in the hundred and second Psalme, where the Prophet saith that* *the heavens and the earth shall perish, and wax old*; he sheweth that their perishing shall onely be a changing: *For as a vesture shalt thou change them, and they shall be changed.*

* 2. Pet. 3. 10.

* Rom. 8. 21, 22.

* Psal. 102. 26.

Whatsoever therefore is spoken of their consuming, passing away, and perishing, is meant onely in respect of their corruptible qualities, the substance still abiding: and so shall the fire at the last day serve for a purging, not for an utter consuming. There shall indeed be nothing unchanged, because all things shall be renewed, and each thing brought into a perfect state, Acts 3. 21. *A new heaven and a new earth*, 2. Pet. 3. 21. Not new by *creation*, but by *commutation*; *Non per interitũ pristinorum, sed commutationem in melius*, as saith* S. Hierome; *Not by a destruction of the old, but by a change into a better.*

* Hier. on Esay.

Which thing is yet further seen even in the little

world Man, who is the Epitome of the greater world it self. For he, in the substance of his bodie, shall not be destroyed, but changed; and in stead of corruption shall put on incorruption, as saith S. Paul; beholding at the last day his Redeemer, *not with other* (saith Job) *but with these same eyes.* In like manner, the greater world, in stead of corruption, shall (I verily think) put on incorruption; and being purged by the fire, shall be delivered * *into the glorious libertie of the sonnes of God.* It shall not be delivered onely in the libertie of the sonnes of God; that is, when they are delivered: but it shall be delivered εἰς τὴν ἐλευθερίαν, into their libertie; as it is Rom. 8. 21. If it were onely in their libertie, or when they are delivered; then in stead of a changing, there might be a consuming: which is in some sort a deliverie; because (although quite taken away) there is then no longer a subjection unto vanitie: but seeing it is into the libertie of the sonnes of God, it shall (like mans glorified bodie) put on incorruption; and so, *suo modo*, in its kind, be partaker of an incorruptible state.

1 Cor. 15. 53. Job 19. 26.

* Rom. 8. 21.

The creatures remaining at the worlds ending.

But in this changing, I think we may fitly exempt all such creatures which now serve onely for the necessity of mans life; as those which be for food, clothing, and the like: because then (at the end of the world I mean) there shall be an end likewise of all such needs.

Yet there are those who comprehend the brute beasts also, and other creatures having sense and life, within the limits of this libertie: but they do somewhat qualifie their meanings; as thus: They shall not be partakers of the glorie of the sonnes of God; yet in their kind they shall be fellows with them in that glorious state, like as once they were in Paradise, before man had fallen. But whether I may embrace this opinion, I know not; and that in regard of the foresaid reason: unto which others also assent,* saying, *Ista naturas rerum non mansuras in extremo*

* Pet. Mart. loc. com. See also Dr. Willets Hexap. on Rom. chap. 8. quæst. 34.

extremo die, nisi aliquid opus habituræ sint. Wherefore we may rather rele upon this, without any such speciall respect unto those creatures; namely, That the worlds fabrick, consisting of heaven and earth, shall not be destroyed, but renewed according to the qualities, by the purging fire. For *the moon shall shine as the sunne, and the light of the sunne shall be sevenfold,* as saith the Prophet Esay, chap. 30. 26. which S. Hierome expoundeth thus, viz. that the sunne and moon shall receive that admired augmentation of light, as a reward of their labours. Yea and * Zachary also witnesseth that there shall be but one perpetuall day: for there shall be so great light that there shall be no difference between day and night; as some observe from thence. Neither is it a marvel, saith * Chrysostome, that the creatures should at that time be illustrated with so great splendour and light: for kings, upon the day when they inaugurate their sonnes, are wont to provide, not onely that they may come forth with all singular pomp and appearance; but also that their servants may be well adorned. Much more therefore may we think, when Christ shall sit in glorious majestie upon his throne, and the just, who are the sonnes of God, shall be admitted to their paternall heritage and kingdome, that then God Almightie shall cause that all his creatures be decked with an extraordinary brightnesse, beautie, and lustre. For although it be * said, that the moon and the sunne shall shine no more, but rather that the Lord himself will be for an eternall light; yet it meaneth not that those starres should perish, but that the uncreated light shall be * more glorious. So that as now the greater light obscures the lesse; in like manner it shall be then when we come into that citie which wanteth not the sunne or moon. It is not said, *Solem & lunam non habebit; sed, Non indigebit, ut luceãt in ea;* that the city shall have no sun & moon; but that it shall not want them

* Zach. 14. 7.

* Pet. Mart. ex Chrysost.

* Esay 60. 19. Revel. 21. 23.

* Pare. in Apoc. cap. 21.

them to shine in it: silently declaring, that then indeed shall be those luminaries; yet they shall not then perform, as now, the same uses of light, being subject to motion, and an incessant wheeling up and down to cause a rising and setting, yea and to distinguish one time and day from another: For time is but a space borrowed, and set apart from eternitie, which must at the last return to eternitie again. This for the heavens.

And as for the earth, our Saviour promiseth, amongst other blessings, a blessing to the meek, saying, that they shall inherit the earth: which promise of his (saith * one) we see is not performed in this world; and therefore to be then expected, when there is a new heaven and a new earth for the saints of God; and when the whole creation (which now groneth) shall be delivered into the glorious libertie of the sonnes of God. Thus some.

Matth. 5. 5.

* *Dr Willet, Hexap. in Rom.*

But in this new heaven and earth we must not expect any terrene pleasures, as the carnall Jews do dream, as the Turks believe, or as that Heretick *Cerinthus* held, and after him the *Millenaries* or *Chiliasts*: because such pleasures are fading, and corruptible; joyes farre unfit for saints, whose very bodies have put on incorruption. We look therefore for new heavens and a new earth wherein dwelleth righteousnesse, as saith S. Peter, 2. Pet. 3. 13. and spirituall delight unto eternitie, as in Psal. 16. 12.

And further, seeing it is said that righteousnesse shall dwell in the new earth as well as in the new heaven, it may from thence be gathered, that both the heaven and the earth shall be the seat of the blessed; and that the saints shall * follow the Lambe whithersoever he goeth; and that there shall be an intercourse between the said heaven and earth: which is, as Jacob in his * vision saw, when the angels were some of them ascending, some descending that ladder which reached from heaven to earth:

* Revel. 4. 14.

* Gen. 28. 12.

earth : or as * Moses and Elias were seen talking with Christ upon the Mount.

* Matth. 17. 3.

But herein let us not be too bold ; for in this we may soon wade too farre : namely if we should nicely determine how the saints shall then be disposed of ; whether some alwayes to the heaven ; some alwayes to the earth; or such like things which to us are unrevealed.

Let it therefore suffice, that although the manner of this change be secret, and not known in every point, yet the change it self is most certain : and therefore hold we most certainly this truth for our stay, that the world shall end; and leave we the manner thereof to be exactly and particularly revealed by him, who will very quickly perform it. But of the time when, in the following Section.

Sect. 3.

AND thus much concerning the manner of the worlds ending.

Of the time when the world endeth.

Now follows the time when. But here I purpose not to meddle with any thing which shall tend to the precise scanning of it. I will leave that to them, who, out of a desire they have to lanch into the deep, have pried too farre (I fear) into the secrets of the Thunderer : for oftentimes we see that they do but wisely tell us foolish tales, and smoothly bring long lies unto an end, because they say more then they have warrant for : To whom *Du Bartas* by our famous *Silvester* thus sendeth greeting,

You have mis-cast in your Arithmetick,
Mis-laid your counters, gropingly ye seek
In nights black darknesse for the secret things
Seal'd in the Casket of the King of kings.
'Tis He that keeps th'eternall clock of Time,
He holds the weights of that appointed chime,
And in his hand the sacred Book doth bear
Of that close-clasped finall CALENDER,

Where,

Where, in Red letters (not with us frequented)
The certain Date of that Great Day is printed;
That Dreadfull Day, which doth so swiftly post,
That 'twill be seen, before foreseen of most.

Yet such is the folly and curiositie of many, that they will needs undertake to tell us when this time shall be: which if they could, then it seems it should not come as *a* * *snare* upon the world, nor yet steal upon us as *a thief in the night*: But so it shall do. For *of that day and houre knoweth no man*, saith our Saviour: & we may take his word; because himself by his humanity could not know it: although in his humanitie, by reason of his Godhead, he was not ignorant of it. Had he not therefore been God as well as man, and of a divine as well as humane nature, he must have remained ignorant in it both with men and angels, Mar. 13. 32. And furthermore concerning us, that we be not too bold, the same lesson which he taught his disciples is also ours, not *to know the times or the seasons which the Father hath put in his own power*; as it is Act. 1. 7.

* Luke 21.35. 2.Pet.3.10. 1.Thess.5.2. Revel.16.15.

From whence we may learn, that whilest we exercise our selves in things that be too high for us, we shall sooner betray our own curiositie, then deliver a truth. For, *Maxima pars eorum quæ scimus, est minima pars eorum quæ nescimus*; The greatest part of those things which we know, is the least part of what we know not.

Whereupon I cannot but think that the predictions of men in this kind (especially seeing they are so various) must needs be as true as those amongst the brood of presumptuous Astrologers concerning the end of Christian Religion, which (as * *Du Plessie* observeth from them) should have been some hundreds of years before this time, nay it should then have ended, when indeed it began most of all to flourish: And so I doubt not, but am certain, that the world also should have had many endings

* *De verit. Christ. Relig.*

ings before this time, according to the doting froth of some mens idle phancies; which, if need were, I could relate. But as time was little beholding to them for cutting it off so short; in like manner they were as little beholding to time for discovering their lies so plainly.

I will therefore (before I meddle further with such approved liars) leave them unto their best friends to gain (if they can) their credit for the time past, and addresse my self to examine those who talk of a time yet to come.

Amongst whom the Jews have a tradition, which although they fetch from the school or house of Elias, yet we are not bound to credit it: For it was not Elias the Prophet, but a Rabbin of the same name, as the learned know; and who more fabulous, or more full of vain phancies, then those their greatest Doctours?

Six thousand yeares (saith he) the world shall stand, and then it shall be consumed by fire. Two thousand years shall be void or without Law; two thousand years shall be under the Law; and the last two thousand shall be the dayes of Messiah or Christ. Thus farre Elias, And that this opinion hath been favoured by * some of old, and is also favoured now by some of our time, I am not ignorant: which chiefly they do for this reason; namely, because the six dayes of weekly labour do bear the Symbole of 6000 yeares, wherein mankind should endure the cares, and troubles, & travels of this world; and then shall come that Sabbath of Sabbaths in the heaven of heavens, when they are to rest from their labours. Or as God was six dayes in creating the world before there was a Sabbath: so he shall be 6000 yeares in governing it; and then the seventh begins an eternall rest in heaven.

Now this they ground upon the words of S. Peter; who, speaking of the day of judgement, noteth that a thousand yeares in Gods sight are but as one day, and one day as a thousand yeares, 2. Pet. 3.8. So that in this regard,

* It was favoured by Just. Martyr, Ireneus, Lactantius, Hierome, &c. but disallowed by Ambrose and Augustine. See Augustine in exposit. Psal. 90.

regard, for six dayes of weekly labour, they would have 6000 yeares of worldly trouble, and the like, before it endeth.

But if this weaknesse be the greatest strength for maintaining their assertion, then I do not doubt to see their cause fainting upon the ground, as not being able to subsist, or stand upright.

For first concerning the Rabbin, had he been a Prophet, he would certainly have been a better Seer. This I am sure of, that he was much deceived in the particular division of his time, in making three periods, all of 2000 yeares apiece. For although the yeares of the world have been diversly accounted by sundry authours; yet you shall not find the Rabbins just number of 2000 yeares, from the Creation to the Law, in any of them. *Scaliger*, *Calvisius*, *Helvicus*, *Funccius*, *Bucholcerus*, & others, who reckon the fewest yeares, do account 45; above two thousand; and yet they reckon not so many as they should by almost 60 yeares: some say altogether 60. as may be seen by *Calvin*, *Junius*, *Pareus*, *Ainsworth*, or Dr *Willat* on Genesis; besides many excellent Chronologers: especially Sr *W. Ralegh* (that learned Knight) who in his historie of the world makes it plain.

And not onely doth this Elias fail in his first division, but in his second also: For from the Law to the death of Christ are not 2000 yeares; there be wanting well near 560 to make them up. As for example, take a view again of *Scaliger*, *Calvisius*, *Helvicus*, or our countrey-man Mr *Broughton*, or *Bucholcerus*, or *Funccius*, and see if it be not even so. *Bucholcerus* (I think) wanteth the fewest, and yet it is manifest that he falleth short of 2000. Whereupon it may be seen that in his first division (which is for the time before the Law) he overshoots; And in his second division (for the time under the Law) he is too short; imitating a bad

bad archer, who tries, but cannot hit the mark.

If then for the time past the Rabbin is found to be faulty, why should we be so mad as to give credit to him for the time which is yet to come? Questionlesse as he hath deceived us in the one, so likewise he will deceive us in the other; and therefore he is to be slighted and nothing credited at all. Yea saith* one, *Dictum Eliæ non est authenticum. Valet quidem adversùs Judæos (qui vaticinium illud admittunt) ad probandum venisse Messiam, cùm jam elapsi sint anni quinquies mille & 560: sed ad finem seculi demonstrandum nihil valet.* That is, The saying of Elias is not authentick. It maketh indeed against the Jews (who entertain that prophecie) to prove that the Messias or Christ is come, seeing there are* 5560 years of the 6000 alreadie runne out: but it prevaileth nothing to shew the end of the world, for which cause it was chiefly intended.

* *Zanch. Tom. 7. Prælect. de fine seculi.*

* Note that the years from the Creation are now many more.

But come we now to the examination of that forenamed place in Peter, which is brought as an help to uphold the Jews opinion, because a day taken for a thousand years, and applied to the weekly dayes, seemeth to point out six thousand years: so some imagine. But without doubt the Apostle meant no such thing: nor yet had in his mind to set down any strict manner of accounting times, peculiar to the court of heaven: For mark but the circumstances of the place, and view well the occasion given him to speak so as he did of the Lords coming to judgement, and then you shall soon find, that it was to comfort the godly against the cavils and reproches of the wicked; who, because the time seemed long to them, did thereupon mock at the promise of his coming, taking it as if he would not come at all. For, *Where is* (say they) *the promise of his coming? since the fathers fell asleep, all things continue as they did from the beginning*, &c. Which is as if they should say, Is it not a great

2. Pet. 3. 4.

great while since the world began, and yet what alteration can we see in it? yesterday was as is this day: men are born & die as orderly as they ever did: Nature keeps her course, and the like: Wherefore if the Judge had meant to come or shew himself at all, he would not surely that his coming should be thus long deferred, but would rather have shewed himself before thus many yeares could possibly be born. Thus, or after this manner, such mockers reasoned and cavilled with S. Peter: which cavill of theirs is agreeable to that of S. *Paul, where he mentions such as did not believe the Resurrection, but were like-minded with these who mocked at the slackness of Christs coming to judgement.

*1. Cor. 15. 12.

Saint Peter therefore, that he might * comfort the weak and confute the wicked, sheweth how to answer this there faithlesse objection; namely thus, That although the time be long in respect of us, yet to God (with whom there is no time either long or short) it is not so. A day compared with an houre, to us may seem long: But a thousand yeares compared with a day, to God they seem but short; for what is time to eternitie? And therefore, although that day to the faithlesse seems so to be taken away, or deferred rather, as if it were not, or would not come because it quickly came not; yet know that it is not quite taken away. For (as the same Apostle speaketh at the 9 verse) *God is not slack in his promises as some account slackness; but is long-suffering to us-ward, not willing that any should perish, but that all should come to repentance.* And this (questionlesse) was the Apostles meaning, farre differing from their phancies who from hence would fain gather that for one day God useth to account a thousand yeares, and a thousand yeares for one day. *Hic sermo* (saith * one) *est de æstimatione hominum, qui non æquè æstimant tempus longum & breve.* This speech is according to the estimation of men, who

* It was but to shew (saith S. Augustine) *contemnendam futuri temporis brevitatem.*

* Maior. in Pet.

who do not equally esteem of times long and short.

Which also doth yet further appear by that in the 90 Psal. at the 4 verse. Where, as there is a comparison likewise between 1000 yeares and one day; so also, in respect of God, a thousand yeares are compared to that which is lesse then a day, namely to a watch in the night. For (saith the Prophet) *God turneth man to destruction, and then he saith, Turn again ye children of men. For a thousand yeares in thy sight are but as yesterday, and they are gone as a watch in the night.* To which purpose S. *Hierome* speaketh also fitly, saying, *Æternitati comparatũ omne tempus est breve*; that is, All time compared with eternitie is but short time, yea indeed as no time. And again, did not *Zanchius* worthily find fault with *Ireneus* and *Lactantius* concerning these things? Undoubtedly he did; affirming that their opinion was contrary to the word of God: For our Lord himself saith, that none can know, &c. Whereas (saith he) if this sentence of the 6000 yeares were true, then the time might be known.

Hierome on Jer.

Zanch. Tom. 7. Prælect. de fine sæculi.

Let therefore they, who will, embrace this phancie of six thousand yeares for the whole time of the worlds continuance; I cannot: For sure I am, that the tradition of Elias hath greatly failed for the time that is past: if therefore it should be true for the time which is yet to come, it were more then an unheard of wonder: and as for the argument taken from S. Peter to uphold it, how his meaning hath been thereby forced, is declared.

Yet nevertheless I will not deny but that the world may stand six ages before it endeth; and so the ages, although not the yeares, may be compared to the six dayes of weekly labour: and that the seventh age shall begin at the resurrection, as was figured in Henoch the seventh from Adam, who died not as did the six before him, but was taken up into heaven. Unto this I assent as probable. But that each age should have a thousand yeares, is still denied;

The world hath six Ages, but not reckoned by thousands of years.

denied; and as in setting them down according to Scripture will be manifest.

The first is from the creation to the floud: and this by S. Peter is called the old world, 2. Pet. 2. 5.

The second is from the floud to Abraham.
The third, from Abraham to David.
The fourth, from David to the captivitie.
The fifth, from the captivitie to Christ.
} Matth. chap.1.

The sixth is the time after Christ; called in many places the last age, and the last of times: as in Hebrews, ch.1. 1. *God (saith the Apostle) who at sundry times and in divers manners spake unto the fathers by the Prophets, hath in these last dayes spoken to us by his Sonne.* And again, S. Peter calls this the last of times, 1. Pet. 1.20. S. John also saith, *Little children, it is the last time*, John 2. 18.

These I grant to be the six ages of the world: but who is so mad as to say or think that there were just thousands of years betwixt each or any of them? The Septuagints make more then thousands between some of them: and the Hebrews, they make lesse; excepting the first age. Yet if you will know their lengths according to that which is none of the worst accounts, take them thus: and this account I may afterwards prove in another work.

The first hath 1656 years.

The second (if we end it at the beginning of Abrahams peregrination and giving of the promise) hath the just number of 427 years.

The third (if we end it at the death of Saul and beginning of Davids kingdome after him) containeth the number of 866 years.

The fourth (if we begin the captivitie in the first yeare of Nebuchadnezzar) hath 451 years.

The fifth containeth the length both of the Chaldean, Persian, and Grecian Monarchies; together with so much

much of the Romane greatnesse as was past before Christ came into the world: amounting in all to the summe of 523 years, or thereabouts; although we reckon no further then the birth of Christ. But go rather to his baptisme, and then this age is 553. And as for the captivity (formerly mentioned) begin it rather in the 19 yeare of Nebuchadnezzar; and in the stead of 451, account 471.

The sixth and last hath so many years as are from the time of mans redemption untill now: for hitherto this age hath continued, and shall not be ended untill the * last trumpet be blown, and *Surgite mortui, venite ad judicium*, Arise you dead, and come to judgement, be sounded in our eares.

* 1. Cor. 15. 52. Revel. 10. 5, 6.

To which purpose, divine *Du Bartas*, that noble Poet, brings in our father Adam, speaking of these ages thus: setting them down, as if the speech had been uttered by him to his sonne; saying,

Du Bartas in the handy-crafts.

The First begins with [1] *me: the Seconds morn* — 1. Adam.
Is the first [2] *Ship-wright, who doth first adorn* — 2. Noah.
The hills with vines: that [3] *Shepherd is the Third,* — 3. Abram.
Who after God through strange lands leads his herd,
And (past mans reason) crediting Gods word,
His onely sonne slayes with a willing sword.
The fourth's another valiant [4] *Shepherdling,* — 4. David.
That for a cannon takes his silly sling,
And to a sceptre turns his shepherds staff;
Great Prince, great Prophet, Poet, Psalmograph:
The fifth begins from that sad [5] *Princes night* — 5. Zedekiah; or the captivity.
Who sees his children murdered in his sight;
Or from poore Judahs dolefull heavinesse,
Led captives on the banks of Euphrates.
Hoped [6] *Messias shineth in the Sixth;* — 6. Christ.
Who, mockt, beat, banisht, buried, crucifixt
For our foul sinnes, (still selfly-innocent)
Must fully bear the hatefull punishment:

7 The eternall sabbath.

The 7 Last shall be the very resting-day;
Aire shall be mute, the waters works shall stay;
The earth her store, the starres shall leave their mo-
The sunne his shine: and in eternall pleasures (sures,
We plung'd, in heaven shall aye solemnize all
Th' eternall sabbaths endlesse festivall. Thus far he.

But from hence I proceed; and on the sudden I have met some other sorts of calculatours. For so various are mens searching heads, that these things have not onely been boulstered out by Rabbinicall traditions, sabbaticall symboles, and the like; but also by sundry other phancies.

Impostours and false Prophets concerning the worlds ending.

Some have pretended revelations, and thereby deluded many. Amongst whom learned *Gerard makes mention of a certain woman of Suevia in Germanie, who was called *Thoda*; & she, in the yeare of Christ 848, prophesied that by the apparition of an Angel it was revealed unto her, that the world should end that very yeare. After whom there were others as true prophets as her self: namely in the years 1062, 1258, 1345, 1526, 1530, &c. He in the yeare 1526, ran up and down the streets, in the citie of S. *Gallus* in *Helvetia*, crying with horrid gestures, that the day of the Lord was come, that it was present. And he in the yeare 1530, did so strongly prevail with some, that he perswaded them the last yeare of the world was come; whereupon they grew *prodigall of their goods and substance, fearing that they should scarcely spend thē in so short a time as the world was to continue. But this surely was an Anabaptisticall trick, and a chip of that block which maketh all things common; boasting of the abundance of visions & dreams

*Ger. loc. com. Tom. 9. pag. 182.

Ibid. ut antea.

Others have pitched upon certain Mathematicall revolutions, and thereby constituted a time: amongst whom *Joannes Regiomontanus* is said to be one, who partly thought that the yeare 1588 should adde an end to the world; because at that time was a great conjunction of Saturn,

Saturn, Jupiter, & Mars. Upon which occasion I remember these verses,

Post mille expletos à partu Virginis annos,
Et post quingentos rursus ab orbe datos,
Octogesimus octavus mirabilis annus
Ingruet; is secum tristia multa trahet.
Si non hoc anno totus malis occidet orbis,
Si non in nihilum terra fretumque ruent;
Cuncta tamen mundi sursum ibunt atque deorsum
Imperia: & luctus undique grandis erit. That is,

When from the Virgins * birth a thousand years
With full five hundred be compleat and told,
The Eightie Eighth a famous yeare appears,
Which brings distresse more fatall then of old.
If not in this yeare all the wicked world
Do fall, and land with sea to nothing come;
Yet Empires must be topsie turvie hurl'd,
And extream grief shall be the common summe.

* Or from the time of Christ born of a Virgin.

Which what it was, the event hath shewed.

Others again dream of secrets in Cabalisticall conclusions: Which have lately shewed themselves to be but idle phancies, in a book called *Ecce Sponsus venit.*

Some subscribe to Analogies taken from Jubilees, or from the years of Christs age, and the like.

Yea, and to omit many, sundry others have their tricks and devices in Arithmeticall numbers, whereby they can directly calculate the time, and make the superstitious multitude admire them, and lend a more then greedie eare to their feared predictions.

Such a one was he, who out of these words, MUNDI CONFLAGRATIO, which signifie *The burning of the world*, hath set down the time when the world must end; namely in the yeare of our Lord 1657: and that for two reasons. First, because as the yeare of the world 1657 was a fatall yeare, in regard of the universall

A crotchet to shew that the world must end in the yeare 1657.

universall floud, which then came and drowned all the world: In like manner the yeare of Christ 1657 shall also be a fatall yeare, in regard that then shall be the end of the world by fire: for is it not said in Matthew, *As it was in the dayes of Noah, so shall also the coming of the Sonne of man be?* Matth. 24. 37.

Secondly, take these two words, namely, MUNDI CONFLAGRATIO, which signifie in English *The burning of the world*, and you shall find in them so many numerall letters as will make 1657, if they be all added together; as in the margent may be plainly seen. For in the first word MUNDI there are M, V, D, and I; which are all numerall letters: and in the other word, namely CONFLAGRATIO, C, L, and I, are likewise letters of number; and how much every one of them doth signifie is easily known: amounting in the whole summe to 1657.

MVNDI (onflagratio
1000
5
500
1
100
50
1
1657.

Thus, upon these two phancies, is this prediction grounded: which that it is altogether idle may easily appear.

For first concerning the universall floud which they urge; that yeare was indeed a fatall yeare to the world when it came: but that it came in the yeare of the world 1657, is denied: for it came, not when Noah was 600 years compleat; but when he was in the six hundredth yeare current of his age: and so the yeare of the world was not 1657, but 1656. As for example;

Seth was born to *Adam*, when he was	130.	Gen. 5. 3.
Enos to *Seth*, when he was	105.	Gen. 5. 6.
Kenan to *Enos* when he was	90.	Gen. 5. 9.
Mahalaleel to *Kenan*, when he was	70.	Gen. 5. 12.
Jared to *Mahalaleel*, when he was	65.	Gen. 5. 15.
Henoch to *Jared*, when *Jared* was	162.	Gen. 5. 18.
Mathuselah to *Henoch* when *Hen.* was	65.	Gen. 5. 21.
Lamech to *Mathuselah*, when *Ma.* was	187.	Gen. 5. 25.

Noah

Noah to *Lamech*, when *Lamech* was 182. Gen.5.29. Then came the floud in the yeare of *Noah* 600. Gen 7.11. All which do make (being added together) 1656, and not 1657, as they imagine: because that which is said of *Noah* in Gen. chap. 7. verse 6. *viz.* that he was 600 years old when the floud of waters was upon the earth, is expounded in two severall places after it, that it must be understood of his 600 yeare current, and not compleat. The places are Gen. 7.11. and Gen. 8.13. the one expressing the beginning, the other the ending of the floud: and so also the most and best chronologers hitherto have observed, although some do not.

Which, as it is agreeable to the truth of computation, so also (that I may answer one phancie by another) it is more congruous to the nature of the number of the yeare wherein it came: For *Six* is no number of rest; witnesse the six dayes of creation, the six dayes of our weekly labour, and the six ages of the world. But *Seven* is for rest; witnesse the sabbaticall dayes, the sabbaticall years, and that eternall sabbath in the heaven of heavens, when the six ages of the world shall be ended.

Wherefore, in the yeare of the world 1656, the Ark was without rest, and tossed upon the waters: but in the yeare 1657 it found rest; the waters were dried up and gone; and Noah then came out and offered sacrifice.

And further, admit it be said, that *As it was in the dayes of Noah, so shall also the coming of the Sonne of man be:* Doth this point out any thing concerning the time of his coming? Verily no. It shewes indeed the great securitie that shall then be in the world amongst the wicked: so that as the floud came upon the old world when they feared nothing; in like manner shall the coming of the Sonne of man be. But what is this to the time? Our Saviour doth not compute the time, but compares the manners of the times together; as may be very

plainly seen by that which he hath elsewhere published, saying, that *the coming of the Sonne of man shall be*, not onely *As it was in the dayes of Noah*, but also *As it was in the dayes of Lot*, Luke 17. 28.

For conclusion therefore, seeing the floud came before that yeare which they have computed, it may easily appear that their *Mundi conflagratio* for the end of the world in the yeare of Christ 1657, is but an idle phancie. And as for the time which they referre to the dayes of Noah, we see that it is likewise referred to the dayes of Lot: the intent onely being to compare the times, and not compute them.

But secondly for their *Mundi conflagratio*; admit it were so that the floud did not come untill the yeare of the world 1657 (as they would have it) yet why should it be that these numerall letters must be picked out of two Latine words rather then out of words in some other language? In Greek it is Κόσμε συμφλεγμασία, out of which words you may gather 1830 at the least.

Surely in this we may say, that as in the making of anagrams upon a name, if one language will not help us, we may then write the name in some other tongue rather then want letters for our purpose: so the same libertie (belike) he took who was the first authour of this phancie for the worlds ending: wherefore we may well conclude that it is but idle and not worth regarding.

Another (much like to this) is that which others have also hatched; whereby in the yeare of Christ 1645, should be the end of the world.

Another crotchet, whereby the world should end in the yeare 1645.

Now this they gather out of these words, ADVENTVS DOMINI, which signifie *The coming of the Lord*; for in them they have so many numerall letters as will make 2012: out of which they subtract so much as they gather out of these words, DIES ABBREVIABVNTVR, *The dayes shall be shortned*; namely 517: and then the remainder

der of 2012 is 1495: unto which they adde so many as these words will afford, *viz.* PROPTER ELECTOS, which signifie *For the elects sake*; wherein is a number of 150; and so the whole summe amounteth to 1645, being (as they fondly imagine) the last yeare of the world.

But if such or the like phancies could hold, then (questionlesse) the world should have had many endings since it first began; and must either have had a new creation, or else no world had been till now. The former opinion confuted.

As for example, either in the yeare 1532, or in the yeare 1533, or in the yeare 1578, or in the yeare 1588, or in the yeare 1623, the judgement day (upon these grounds) was foretold to come. For first, in the yeare 1532, they had two wayes to prove it; either out of these words, VIDEBVNT IN QVEM PVPVGERVNT; or out of these words, VIDEBVNT IN QVEM TRANSFIXERVNT; which signifie, *They shall look on him whom they pierced*; the numerall letters being in either of these so many as will make 1532. Secondly, for the yeare 1533, they had this false proof, binding still upon numerall letters, which they gathered out of these words, IESVS NAZARENVS REX IVDÆORVM, *Jesus of Nazareth king of the Jewes*; here being so many as will make 1533. Thirdly, for the yeare 1578, thus it was: *viz.* they take these words, ADVENTVS DOMINI, and in them they have 2012; out of which number they subtracted 517, which they gathered from DIES ABBREVIABVNTVR; and then the remainder makes 1495: unto which they adde the number of the letters [*a,e,n, t,s,*] in *adventus*, which were not numerall before, yet by their naturall position in the alphabet or crosse-row they give 56: then again by the same reason they take 27 out of [*o* and *n*] the non-numerall letters in the word *Domini*; both which numbers being added to 1495; do make 1578. Fourthly, for the yeare 1588, the

John 19. 37.

Vide Buchol. chron. anno Dom. 1533.

manner of calculating is as before for the yeare 1645, unto which number having raised their summe, they subtract [*a,e,u,t,s,*] *viz.* 56: and so they have 1587 years, which they reckon compleat, and referre their prediction to the beginning of the yeare 1588. *Vide Gerardum in locis communibus, pag.* 185. *Tom.* 9. Fifthly, for the yeare 1623, thus was the phancie, IVDICARE VIVOS & MORTVOS, *To judge the quick & the dead*: Now here (as before) they were led by numerall letters, having so many as would make 1623, in which yeare they dreamed of the worlds ending. Now these times we know are past long since, but the event you see hath not answered to the prophesie. Things therefore of the like nature being yet to come, and built upon the same grounds, cannot but prove as false.

Vide Dieter. post Dom. 2. adven.

But what need many words be spent about the confutation of such idle dreams and foolish phantasies? Surely, that great and terrible day of the worlds ending, is a thing of greater moment then that it should be thus dallied with. Let not therefore the quintessence of wit expose us to such impudent folly: For although it may somewhat please us in shew; yet, when the best is made of it that can be, it will be proved, not onely the doting froth of a wittie brain, but also a superstitious and an heathenish vanitie.

I have seen a world of phancies more upon this subject, especially such as may be taken out of * *Cusa*, who was made Cardinall under *Pius* the second: But seeing they are as idle as the former, and built upon as false grounds, I scarce hold them worth the answering.

* See Treas. of ancient and modern times, l. 4. cap. 20.

*Napeir on the Revelat. prop. 14 where he determines the time to be betwixt the years 1688, and 1700; naming either the yeare 1697, or 1699.

Yet (having come thus farre) let me go a little further, because in the next place I hope to meet some wiser men; granting (as indeed they ought) that the precise day and houre of the worlds ending cannot be known: yet they would not have any to be so* base of judgement,

as

as to conclude thereby, that an apparent length of this last age may not be found; or that seemingly between such and such years the judgement day shall not be known to come: For is it prophesied; and why are prophesies, if they either may not, or cannot be understood? It is recorded in Matth. 24. 15. *Let him that readeth, understand.* It is said Dan. 12. 10. *None of the wicked shall understand, but the wise shall understand.* And Revelation 1. 3. *Blessed is he that readeth, and they that heare the words of this prophesie, and keep those things which are written therein: for the time is at hand.* And Dan. 12. 4. it is said, that these things toward the end shall be unsealed: for *many shall runne to and fro, and knowledge shall be increased.*

Now here I may answer, that although some understand the foresaid texts to have relation to the times towards the worlds ending, yet there be no*few who contradict it; affirming that what they alledge out of Daniel was accomplished about the time of *Antiochus*: and that by *running through* (which some reade *running to & fro*) is meant the diligent perusing of the book: namely, that though at the first it were not regarded, yet many in time to come should give their minds unto it: being (as *Polanus* expoundeth) thus to be understood, that in the great persecution under *Antiochus*, many shall be found faithfull, who shall cleave unto this prophesie: And as for the wicked not understanding it, we must apply it unto the false brethren which should be in those dayes of persecution, and give way unto *Antiochus* his wicked proceedings; labouring to seduce and betray their brethren; and they themselves living without any care to observe the accomplishment of this prophesie, never comparing the event with the thing prophesied: For (as was foretold Dan. 11. 34.) *many shall cleave unto them fainedly*, &c. And for *sealing it up unto the end*, is

* See Jun. Calv. Polan. or Dr. Will. Hexap. on Dan.

is meant the not making it too common on the sudden, because from the time of these visions untill the dayes of *Antiochus* were about 300 years. In which regard it is said concerning that other prophesie of the Revelation, that it must not be sealed up, because the time was at hand, Revelat. 22. 10. Yea some part of it was not onely presently to take effect, but even then in act, chap. 1. verse 19. And as for that in Matthew, it hath relation unto the destruction of Jerusalem under *Titus* and *Vespasian*.

Or secondly, be it so that I do not altogether condemne this their inquirie, because I verily think that a modest and religious search into these mysteries may see very farre: yet nevertheleſse, seeing interpreters of such mysteries are not (as yet) at one among themselves, especially in their Synchronismes and periods of time; it cannot be denied but that even in them there is much matter of doubt (although they stand upon better grounds then *Hesychius* did, whom S. *Austine** confuted) so that it is hard to say when such a time appears indeed to be. And further, were it so that we had perfect Synchronismes of all things prophesied in the Revelation (for that prophesie doth most concern the end) and knew how to link them together; yet if we erred in the true placing of our first link, it must needs be that the end of our reckoning either fall short, or else overshoot that period, which otherwise might point out an apparent time, if not directly of the worlds ending, yet of such prophesies as shall be fulfilled before it endeth: (for perhaps that which some take to be the apparent time of the worlds ending, may as well be taken for the time wherein other things prophesied shall be accomplished) but how long the end shall be after them, is unknown.

* *August. Epist. 80 ad Hesych.*

In brief, this we find; first that the Beast mentioned in

in the Revelation ſhould have power of doing for the ſpace of 42 monthes, or of 1260 dayes; which prophetically taken ſtand to * ſignifie ſo many years. And ſecondly, that the ſeventh Trumpet ſhall give an end to all: for when the ſeventh Angel came and ſtood upon the ſea, and upon the earth, he lift up his hand and voice to heaven, ſwearing ſolemnly by him who liveth for ever, ὅτι χρόνος οὐκέτι ἔσται, *Time ſhall be no more.* And ſo likewiſe doth S. Paul bear witneſſe: For, *Behold* (ſaith he) *I ſhew you a Myſterie, we ſhall not all ſleep, but we ſhall all be changed, in a moment, in the twinkling of an eye, at the laſt Trump; For the Trumpet ſhall blow, and the dead ſhall be raiſed.* Wherefore (ſaith * Pareus) this ſeventh Trumpet ſhall be no other then the Trumpet of the Archangel, by which the dead ſhall be raiſed; as in 1. Theſſ. 4. 6. Which alſo methinks is elſewhere evident, becauſe when S. John ſheweth the events of this ſeventh blaſt, he ſaith, *And the Gentiles were angrie, and thy wrath is come, and the time of the dead that they ſhould be judged,* Revel. 11.18. In which regard it ſeems to me that *Napeir* was not right in allowing as much time to this ſeventh Trumpet, as to any of the former. For though the word ὅταν ſometimes have reſpect to a time, which (as he proveth out of Mar. 4. 32. and John 8. 28.) is not incontinently when; yet here in this place, it hath the beſt & greateſt reference to the immediate blowing of the Trumpet. For thus ſtand the words, ὅταν μέλλῃ σαλπίζειν, *cùm futurus erit clangere.* So that it is not barely ſpoken that the Myſtery ſhall be finiſhed in the dayes of the voice of the ſeventh Angel; but when he firſt of all ſoundeth, or is about to begin to ſound, Revel. 10.7.

That therefore which for concluſion may be gathered, partly from the premiſes, and partly from ſome other parts of the prophesie depending thereupon is this, that when

* Numb. 14.34. Ezek. 4.5,6. Dan. 9.24. Lev. 25.8.

Revel. 10.6.

1. Cor. 15.51.

* In his Com. on the Apoc.

Napeir on the Rev. Propoſ. 14.

Idem in his notes on the 10 chap. Annot. g.

when the Beast mentioned in the Revelation hath exercised his power of doing for * 1260 years, it shall be in the power of the Potentates and Kings of the earth to pull him down, even at the pouring forth of the fifth Viall: from whence he shall be onely able to remain, the most of his time, in a languishing State, and not be finally destroyed till the coming of Christ. In which space of time the sixth Viall is like to be poured upon the Turks, whose plague is to be next after that of Rome; by the means whereof there is a way made for the inlargement of Gods Church, by the calling in of the Jews when the time of the fulnesse of the Gentiles shall be accomplished. Next after which come the seventh Viall & seventh Trumpet, when the Mysterie shall be quite made manifest, and *time be no more*, as the Angel speaketh. And yet notwithstanding all this, I do well perceive, that it is no easie thing to find an apparent length of this last age any long while before it endeth, unlesse we could be directly certified of the utmost periods of all the Trumpets; or knew the times of the seven Vials, which by seven Angels were to be poured out. The best and onely way is alwayes to watch, and to be evermore readie either for death or judgement: for certainly when that time comes, pure hearts (as Bernard speaketh) shall prevail more then subtill words; good consciences better then full purses; because the Judge will not be deceived with words, nor moved with gifts: neither is it possible that any should avoid him; for all must be summoned to appear before him. To which purpose *Du Bartas* descants thus,

Those that were laden with proud marble tombes,
Those that were swallow'd down wild monsters wombes,
Those that the Sea hath drown'd, those that the flashes
Of ruddie flames have burned all to ashes,
Awaked all, shall rise, and all revest
The flesh and bones that they at first possest.
"But some must Justice, some must Mercie taste;
" Some call'd to Joy, some into Torment cast.

CHAP.

*There be three times which seem probable for the end of this reckoning; either in the yeare 1655, or in the yeare 1735, or in the yeare 1866. The first whereof is reckoned from the overthrow of the Dragon by Theodosius; the second, from the decay of the sixt head of the beast in the dayes of Augustulus, which wound the Pope cured: and the last is reckoned from the dayes of Boniface the third who was made the head of all Churches in the yeare of Christ 606, and so had power of doing.

CHAP. II.

Shewing in what part of the yeare the world was created.

IN the account of Times it is verie necessary that there should be a proposed point or mark from whence every reckoning may take beginning; that thereby the years which have severall times of beginning, may the more truly be computed and compared among themselves. Wherefore it cannot be amisse to set down something concerning the time of the yeare wherein the world began; especially, seeing among Chronologers it is usuall to referre their accounts either to the current yeare of the worlds Creation, or of our Saviours birth.

And now, concerning this, there be chiefly three opinions.

Sect. 1.

FOr first Mercator and some others maintain that the world was created in the very time of the Summer Solstice, and that in the beginning of time, the Sunne entring Leo, gave beginning to the yeare.

This (as is thought) was first hatched among the Priests of Egypt, who, observing the river Nilus to overflow about the Summer Solstice, adored it for a God, esteeming the time of its inundation for an infallible beginning of divine actions in things created; and thereupon, for the beginning likewise of the yeare at the time of the worlds creation.

But

But if this were the onely cause, we may not unfitly say, that it was follie and superstition which first set this opinion abroach; and therefore he is worthie of blame who will go about to maintain it. And although Mercator in his Chronologie seems to alledge some other reasons, thereby to uphold his share in it; yet his chief reason is not sufficient: for it is grounded upon that which is not granted, *viz.* that the Flood should end about July, because in the eleventh moneth, which he supposeth to be May or June, when the Olive beginneth to put forth; the Dove brought green Olive leaves unto Noah into the Ark.

To which it is answered, That the word in Gen. 7. 11. which he taketh to signifie *green leaves*, may (as Expositours witnesse) as well be taken for *branches*, even such as have been used to make bowers with: which (according to the translation of the Septuagint) is expressed by a word signifying *a drie stalk*. And so saith a * Doctour in his Hexapla upon Genesis, chapter the first, question the 17. that the word in the Originall is *Gnalce*, which (as S. Hieronme translateth it elsewhere) signifies *the branches of Olives*: and in the Septuagint it is ῥάβδος, *a stalk*, without leaves.

* Dr Willet.

That therefore which the Dove brought, might be some branch of the Olive tree rather then the leaves; & so might the Flood end at the dead time of the yeare, rather then when things were fresh and flourishing.

But admit that the stalk or branch had leaves on it, yet it proves not that it was about May or June, when the Dove found and brought it; because it is * recorded of the Olive, that she loseth not her leaves as other trees do, but is green and flourishing all the yeare. Such leaves therefore as it had before the Flood, it might have after the Flood: for if they were new ones, they must needs spring out in seven dayes; because the Dove was sent out

* Plin. l. 16. c. 20.

out but seven dayes before, returning then as a creature disconsolate, not finding any thing at all.

Sect. 2.

ANother opinion is, that it was created in Autumne, and that the Sunne (who is the Index of time, by whose revolution we account our years) began his course in Libra about the 26 day of October, if the reckoning be reduced to our Julian yeare which is now in use.

Unto which opinion I gave my assent, when I first wrote of these things, and had for it (as I then thought) many strong and forcible reasons, which I did illustrate and lay open at large, building much upon the testimonie of Josephus, whom Calvisius and others strengthen from the words of the Chaldee Paraphrast, upon the first book of the Kings, the VIII chapter, at the second verse: But was most of all drawn to be of their side, by joyning with them in their understanding of those texts of Moses in Exodus, chap. 23, verse 16. and chapter the 34, verse the 22. where first the Israelites are commanded to observe *festum collectionis in exitu anni, quum collegissent labores suos ex agro; hoc est, festum tabernaculorum mense septimo*: and secondly are taught, that this feast was *in revolutione anni, sive revolvendo anno*; by which a man would think that the yeare both ended and began again, about the feast of Tabernacles: and, that though the first moneth of the yeare mentioned, and so commanded to be called, in Exodus the 12, at the coming out of Egypt, was reckoned from the Spring; yet the yeare naturally did nevertheless begin from Autumne, in the seventh moneth from that first.

Sect. 3.

Sect. 3.

HOwbeit upon more mature deliberation I think them to be in the right, who reckon from the Spring: & do therefore fairly lay down my former tenet.

For first, that moneth which began from thence is (in the 12. chap. of Exodus) expressely called the *First moneth of the yeare*, as cannot be denied: The first moneth, not as then appointed, but confirmed, for any thing that the text affirmeth to the contrarie. For seeing the Originall doth not say directly, Let it be the first moneth; it is every whit as right to understand the verb which is wanting to be as well a verb of the Indicative, as of the Imperative mood, and of the present, as well as of the future tense. Whereupon it will also follow, that Moses (by Gods appointment) ordayning this moneth to be the first moneth of the yeare doth make no new institution, but reneweth the old account of the Patriarchs, which was discontinued in Egypt by reason that the Egyptians indeed began their account from their moneth Ptho, in Autumne, when Nilus returned again into his river, as well as from that time which Mercator taketh up, when it first began to overflow. And indeed this word *to you* calls them back from the custome of Egypt: For that manner of reckoning which they had seen there, was none of theirs: And therefore they being come from thence, must know that it belongs to them to reckon thus, *for* TOYU *this is the beginning of moneths*, Exod. 12. 2.

Josephus therefore had small cause to say, that Moses altered the old ancient order of the yeare, especially, seeing he himself doth likewise (in a manner) affirm, how that the Hebrews reckoning from Autumne, do but as the Egyptians did. Besides, Josephus having an eye to the beginning of the years of Jubilee, which began from

from the seventh moneth after that moneth which Moses told them was the first moneth of the yeare, was the readier to think (as the modern Jews since his time have also donne) that in regard of Ecclesiasticall affairs the beginning of the yeare was altered at the coming out of Egypt ; but the old ancient beginning stood still and was regarded in their affairs of civill nature : whereupon he saith that Moses did innovate nothing from the ancient rite concerning the disposing of the yeare for buyings and sellings. In which words (methinks) he doth a little stumble both himself and such as stick to his testimonie, in regard that the nundinations and things of that nature appertained to the Jubilee, which was not instituted untill afterwards. I find therefore little in Josephus concerning this to build upon.

The Chaldee Paraphrast also is in this the same in effect with Josephus, and is so much the more invalid, by how much the reckoning of the Chaldeans and Persians is against it : both of which Nations accounted from the Spring, and might first learn it from the Patriarchs (Terah and Abram) who we are sure lived for a great while together in Ur of the Chaldees, and taught them (at least Abram did) the knowledge of the starres : for so Berosus mentions. And successively ever since, Astrologers have accounted the revolutions of the world from the Sunnes entrance into Aries ; where (in token of the beginning of the yeare) the Persians set their God Mithras, holding in his hand a naked sword.

Saint Ambrose saith, to shew that it was Spring when the world was made, the Scripture speaketh thus, *Hic vobis initium mensium*, This is to you the beginning of moneths. Nor do other of the Fathers (Eusebius, Basil, Athanasius, Cyrill of Jerusalem, Augustine, Gregorie, Nazianzene, Damascene, Beda, Isiodore) besides late writers (Luther, Johannes Lucidus, Bunting, Lydiat,

diat, Polanus, Perkins, Willet, Alstedius and others) but affirm as much. Beda makes mention of a Synod holden in Palestine by Theophilus Bishop of Cesarea, in which was agreed that the world was made in the Spring: Yea, and among the Jews, Rabbi Joshua doth earnestly defend the same tenet against another great Rabbi, who would that it should be made in Autumne.

And further, whereas God blessed the creatures, and bid them increase and multiplie, which blessing presently took effect; who knoweth not that for most kinds of creatures, especially the fish and fowl, the fittest time to engender and increase is the Spring.

The time of the creation is also found from the historie of the Flood, which began on the 17 day of the second moneth of the yeare: which second moneth agrees not to Autumne, but to the Spring: For first by comparing the order of moneths here specified, with that order which God gave Moses command to put in practice, it will well appear that the first moneth was reckoned from the Spring; because it cannot be shewed in any place of Scripture, when the moneths are reckoned in their orders (as the first, second, third, fourth, fifth, &c.) that they take beginning from any other time. So that as Moses accounted the first, second, third, fourth, fifth, &c. from Nisan, which began in the Spring; in like manner did Noah reckon from the same time.

And whereas I heretofore thought that this order of the moneths could prove nothing, because not above 4 of the moneths were known to have names till after the captivitie; and must therefore either not be reckoned at all, or else be reckoned in order according to their number, from whence soever the reckoning be begun: I find it since to be no perfect answer. For even those foure are mentioned as well by the order of their number, as by their name, even before the captivitie, when they

they had names to be called by, 1. King. chap. 6. and chap. 8. Nor was it but so likewise, afterwards, both with them and some of the rest, as in Josephus, and the books of Macchabees may be seen. 1 Mac. 4. 52. & chap. 9. 54.

And then secondly, if it had been Autumne when the Flood began, the Flood continuing much about a just and even yeare, it must needs end at such a time as a man would think should be neither fit for the creatures to encrease and multiplie, nor for the earth (in those Northern parts of the world where the Ark rested) to be dried up, no nor for the grasse and herbs to grow for food, the winter coming on so soon. Saint Ambrose therefore is so fully resolved concerning this, that *It is not to be doubted* (saith he) *but that this second moneth was in the Spring time, when things increase and grow, the fields bring forth, &c. and that God then sent the Flood upon the wicked, when their grief should be the greater to be punished in their abundance.* Which saying of that holy Father seems to be warranted from the words of our Saviour, Math. 24. 37. For it is true according to Christs own testimonie, recorded there, that they of the old world were taken away even in the midst of all their mirth.

And as for the foresaid Texts alledged out of Exodus, they may be answered thus, *viz.* that the yeare as well as the moneth is naturally divided into two chief parts: the one whereof is of the yeare beginning or coming in; the other, of the yeare ending or going out. For by this the yeare seems to be compared to a Ring, which by a diameter is divided into two semicircles, insomuch that when one half is ended by the course of the Sunne from one point of the diameter to the other; the other part must needs be taken for the conversion or return untill the Sunne be come again to the first point, where, as one yeare endeth, the other beginneth. Now then the

seventh moneth is fitly called the conversion or return; because the first half is then at an end, & the yeare entred upon his revolution or return: and so the Feast of Tabernacles (kept alwayes in that moneth) was *in exitu anni*, in the going out of the yeare, as without further scruple may be freely granted.

And furthermore, whereas it is usually objected that the trees were created with ripe fruits on them, and that the world was therefore made in Autumne: it is answered, that in the Eastern parts of the world some fruits are ripe in the Spring as well as in Autumne, as is seen by the Harvest of the Jews, which was never long after Easter. And without question Paradise had the preheminence to be in the best place that the world afforded, and might therefore have ripe fruits sooner then the Jews had their yearly Harvest.

I conclude therefore, that the Sunne began his course in Aries, about the twentieth day of April, according as we now reckon the moneths and dayes of our Julian yeare: For by Astronomicall calculation that's found to be the fourth day of the first week, and first day also of the vernall Equinox, when the years from the Creation be rightly reckoned: so that the 17 of April seems to me to be the first day of the worlds Creation, 3948 years before the beginning of the common Æra of Christs birth.

Here follows the HEXAMERON, OR Discourse of the causes, continuance, and qualities of things in Nature; occasioned as matter pertinent to the work done in the six Dayes of the Worlds Creation.

The second Edition.

EXOD. 20. 11.

In six dayes the Lord made heaven and earth, the sea and all that in them is, and rested the seventh day.

Printed at *CAMBRIDGE*,

By ROGER DANIEL Printer to the famous Universitie. 1642.

CHAP. III.

Containing a discourse of such things as are pertinent to the first dayes work.

Sect. 1.

Of God the Architect of all, and of the first part of the first dayes work.

Time, by whose revolutions we measure houres, dayes, weeks, moneths and years, is nothing else but (as it were) a certain space borrowed or set apart from *eternitie*; which shall at the last return to eternitie again: like the rivers, which have their first course from the seas; and by running on, there they arrive, and have their last: for before **Time* began, there was *Eternitie*, namely GOD; which was, which is, and which shall be for ever: without beginning or end, and yet the beginning and end of all things. *Æternitas enim, Dei solummodo naturæ substantialiter inest*, saith one: that is, *Eternitie is substantially onely in the nature of God.* When Moses therefore would have known Gods name, he tells him, *Thus shalt thou say unto the children of Israel,* *I AM *hath sent me unto you: By which name*, saith Junius, *he would have himself known according to his eternall essence, whereby he is discerned from all other things which are either in heaven, on the earth, or elsewhere.* Which in another place is thus illustrated; *Ego sum Primus & Ultimus, & præter*

**Deus dum cœlum exornaret, fecit æternitatis quandam in numero fluentem imaginem, quam nos Tempus vocamus, Goclen. ex Plat.*

Exod. 3. 14.
* *Hoc nomine se cognoscendum proponit ab æterna essentia sua, quà ab omnibus quæ sunt in cœlo, terra, & infra terram, discernitur, Junius, annot. in Exod.*

ter me non est Deus; I am the First & the Last, & beside me there is no God, Esay 44. 6. Or thus, *Before the day was, I am he; and there is none that can deliver out of my hand,* Esay 43. 13. To which that of the Psalmist doth well agree, *Before the mountains were brought forth, or ever the earth and the world were made, thou art God from everlasting to everlasting,* Psal. 90. 2.

Thus we see, that before ever any thing was, God onely was, who * gave both a beginning and a being unto every thing that is: and he, in respect of his divine essence, is but one. Yet so, as in that single essence of his there be three divine subsistences, or persons all truly subsisting; whereof every one is distinct from other, and yet each hath the whole Godhead in it self: and these are, the *Father, Sonne,* and *holy Ghost,* 1. John, 5. 7.

* When we beholdthe admired fabrick of the world, &c. we can no more ascribe it to chance, then a Printers case of letters could by chance fall into the right composition of any such book as he printeth.

1. The Father is a person who from all eternitie hath begotten the Sonne.

2. The Sonne is a person from all eternitie begotten of the Father.

3. The holy Ghost is a person eternally proceeding from the Father and the Sonne, * as the holy Scriptures witnesse.

* Psal. 2. 7. John 15. 26.

* *These thus distinct in person, not divinitie,*
All three in one make one eternall Trinitie.

* Du Bart. 1. day of the 1. week.

From which eternall and undivided Trinitie, the whole world, consisting of things visible and * invisible, took beginning, as the originall words, *Elohim* and *Bara,* do well expresse. For *Elohim* being a word plurall doth signifie *Dii, Gods:* but being joyned with a word singular, namely *Bara,* which is *Created,* they then together shew that there are three persons in the Deitie, and that the three persons are but one God, who did create. Or thus; * Those two words, being the one of the singular, the other of the plurall number, do note unto us the singularitie of the Godhead, and pluralitie of the persons. And not

* Coloss. 1. 16.

* Dr. Willet on Gen. pag. 20.

not onely so, but they also shew that the three persons being but one God, did * all of them create: For such is found to be the proprietie of the Hebrew phrase, *Elohim bara,* * *Creavit Dii, The Gods created.*

* Gib. on Gen. Quest. 1.

* Freig. Histor. Mosaic. pag. 5.

1. Of the Father it is witnessed, that he created as the fountain of goodnesse. For saith S. James, *Every good and perfect gift is from above, & cometh down from the Father of lights,* Jam. 1. 17. *Of whom and through whom,* saith S. Paul, *are all things,* Rom. 11. 36.

2. Of the Sonne it is witnessed, that he created as the wisdome of the Father. For, *when he created the heavens,* saith Wisdome, *I was there,* Prov. 8. 27. And again, *By him were all things created that are,* Coloss. 1. 14, 15. namely by him who did bear the image of the Father, and was the Redeemer of the world.

3. And lastly of the holy Ghost it is witnessed, that he createth as the power of the Father and the Sonne. For *by his Spirit he garnished the heavens, and by his hand he hath formed the crooked serpent,* Job 26. 13. & chap. 33. 4. Or, as the Psalmist hath it, *By the word of the Lord were the heavens made and all the hosts of them* [*spiritu oris*] *by the spirit of his mouth,* Psal. 33. 6.

All which considered, and found to be done in the beginning, must needs be then when there was no pre-existent matter to work upon. For (* as it is witnessed) the Hebrew word *Reshith,* which is Englished *the beginning,* doth not signifie any substance; neither doth the other word *Bara, to create,* signifie any way to create but of nothing: and thereby it is distinguished from the word *Jatzar, to form,* & *Gnasha, to make.* And therefore though now we behold a glorious something wherein appears in every part more then much matter of wonder; yet at the first, saith noble *Bartas,*

* Gib. on Gen. Quest. 1.

Nothing but nothing had the Lord Almightie,
Whereof, wherewith, whereby to build this citie.

That

That Axiome therefore in philosophie, *Ex nihilo nihil fit*, must needs stand aloof off when we speak of creation. For although it be * true that according to the course of nature and ordinary custome of things, nothing can be made, unlesse out of some former matter: yet when we descend *ad inquirendam primarũ rerum conditionem*, to enquire after the first condition of the first things, then we shall find that God is above nature, because he is the Lord of nature. And he, whose sufficiencie and efficiencie is altogether absolute, must needs be able *supernaturali quâdam ratione*, by a certain supernaturall means, to produce all things out of nothing.

* *Esse ex nihilo nihil fit per mutum seu transmutationem, id est, generatur; tamen ex nihilo aliquid fit per simplicem emanationem, id est, creatur; Goclen. disp. Phys.*

Of which nothing that I may say something, my best and onely way is to look at Moses, and (as near as I can) explain his meaning.

In the beginning (saith he) *God created the heavens and the earth.* In which words he laboureth not so much to deliver a generall proposition of the works of creation, or of the two distinct parts of the world, or of the matter of heaven and earth, as if the one word did insinuate all the superiour parts of the world, the other all the inferiour parts beside: or as if taking both together, he meant by them joyntly *totius mundi semen, the seed of the whole world*, mentioning it under these two words of *Heaven* and *Earth*, as a Chaos. This he meaneth not; because that which concerns the Chaos is mentioned afterwards in the second verse. And what were it but a plain tautologie, to say that in the beginning God created a Chaos, and that Chaos was a Chaos? Wherefore in those first words he intendeth nothing more, then to shew that the world which now is called, according to its parts, Heaven and Earth, was not from everlasting, but took beginning: and so without controversie the right reading of his words doth also witnesse. For in their originall (as it is witnessed by Expositours) thus they sound,

In

In the beginning God created these heavens and this earth: as if it should be said, These very heavens and this very earth, which now we see in being, were not alwayes, but began. Then afterwards he proceedeth to shew how, and in what time God created them: speaking first how all was like a disordered and deformed Chaos, the earth and the heavens not distinguished, but lying as it were in a confused heap all together. And this is manifest. For on the second day, when the heavens were made, it seemeth that their matter was from amongst that masse or unfashioned lump which was said to be void and without form, and not able to be kept together, had not the Spirit of God cherished it, (for the Spirit of God moving upon the waters, did as it were sit upon it and nourish it, as a fowl doth her egges, with heat and life) yea their matter, I say, was from among the waters, which by the power of Gods word were extended and stretched like a canopie round about the earth, as now we see them. In which regard S. Austine's words are also pertinent, saying concerning this All of which we now speak, * *Materies adhuc erat corporearum rerũ informis, sine ordine, sine luce; It was yet an informed matter of corporall things, without order, without light.* Or, as that * Nightingale of France hath sung it,

This was not then the world: 'twas but the matter,
The nurserie whence it should issue after;
Or rather th' Embryon *that within a week*
Was to be born: for that huge lump was like
The shapelesse burden in the mothers wombe,
Which doth in time into good fashion come.

Thus and in this manner I cannot but think of these things, not doubting that Moses in his description of the sensible world meaneth otherwise; but sheweth that that heaven and earth, which now we see, were in the beginning or first degree of being, an earth, or as an earth,

* *Confess. lib. 12. cap. 21.*

* Du Bart. first day of the first week.

earth, or one lump, without form, and void; a darkened depth and waters; a matter of no matter, and a form without form, as one speaketh; a rude and indigested Chaos or confusion of matters, rather to be believed then comprehended of us. *And this,* saith* he, *is the second naturall beginning. For, after the expressing of the matter, followeth that which Philosophers call a second naturall principle, Privation, the want of that form of which this matter was capable; which is accidentally a naturall principle, required in regard of generatiõ, not of constitution, here described by that part next us, earth, which was without form, as is said, and void. This was the internall constitution. The externall was darknesse upon the face of the deep. Which deep comprisеth both the earth before mentioned, and the visible heavens also, called a depth, as to our capacitie infinite, and pliant to the Almighty hand of the Creatour: called also waters, not because it was perfect waters, which was yet confused; but because of a certain resemblance, not onely in the uniformitie thereof, but also of that want of stabilitie whereby it could not abide together, but as the Spirit of God moved upon these waters to sustain them,* &c. Here therefore is the third beginning or principle in nature, that form which the said * Spirit by that action framed it unto.

* Mr. Purch. in his first part, lib. 1. cap. 2.

* Not the aire or winde; they were not yet.

The Hebrews * call the whole masse, as it is comprehended under the names of Heaven and Earth, *Tohu Vabohu: Tohu, without order; bohu, without varietie.* But it was not long that it continued in this imperfect state: for in one week it was (as I may say) both begotten & born, and brought from a confused Chaos, to a well-ordered and variously adorned Universe. Or, as one saith,

* Gibbens on Gen. quest. 2. annot. d.

Materiam Deus ipse creat, comitque creatam.

Whose meaning may be taken thus,

The matter first God out of nothing drew,
And then addes beautie to that matter new. Which

Which was, not because he was unable to make all the world perfect in an instant; but because he would not. Whereupon an holy * Father said, *Voluntas Dei est causa cœli & terræ; & ideo major est voluntas Dei quàm cœlum & terra: The will of God is the cause of heaven and earth, and therefore it is greater then either of them.* * August.

God therefore doth not disable his omnipotence in not working all at once, but sheweth that he worketh all things * *according to the counsell of his will*; which in this work, of creation (prosecuted both by an order of time and degrees) is so farre from eclipsing his power, that it rather doth demonstrate both his power and wisdome to be infinite: and that *he hath so done his marvellous works, that they ought alwayes to be had in remembrance*, Psal. 111. 4. For in wisdome he hath made them all: And why not all at once, was because the counsell of of his will was otherwise. * Ephes. 1. 11.

But may we not yet enquire a further reason why it pleased the Almighty thus to will such a space, and would not rather produce this All perfect at once? *Quest.*

This perhaps may be thought a question too curious to be determined, because Gods will is a sufficient reason in all his actions; and therefore it is better left then looked into. Which surely might well be so, if the reasons urged prove too eagle-eyed and unprofitable, not bettering us in our dulnesse or want of knowledge. But otherwise, if they instruct man in any thing pertinent to his present condition, and inform him so as he may be somewhat reformed by them: then they may be urged without the brand of niceneſſe or imputation of curiositie. *Answ.*

First therefore we may joyn with them, who say that perhaps it pleased Gods infinite perfection to take this leisure; because if the creatures had been made all at once, they

they might be thought to be increate, and not made at all; nor yet to have the like sense of their infirmitie as now they have, one seeing another made before them.

Secondly, seeing the world was thus perfected by degrees before man was, who (being made) was the chief inhabitant of it: methinks so orderly to raise such a sumptuous palace for mankind, whilest yet mankind was not, what was it, but the declaration of a greater kindnesse, and a demonstration proving how kind, how carefull, and how gracious God would be to us ever after being made? and therefore now we must not distrust him, but *in all our wayes acknowledge him, and he shall direct our paths*, Prov, 3. 5, 6. For so he hath promised, and so he doth perform to all that love and fear him; causing every thing to work together for their good; nay, for their best, as the Apostle speaketh. Or, as the Psalmist hath it, *No good thing shall he withhold from them who live a godly life*, Psal. 84. 12.

Thirdly, by this example mankind may reade a lecture against himself, if heedlesly or hastily he behave himself in any work, and shall not rather proceed soberly and by degrees, making haste (as it is said) by leisure. For true it is, that with us a soft pace goes farre: Which made one * fix this contemplation upon the works of creation, saying, *How should we deliberate in our actions which are so subject to imperfection; seeing it pleased Gods infinite perfection (not out of need) to take leisure*? Upon thought of which, let us

* Bish. Hall. *contemp. lib. 1.*

Make sober speed: for 'tis observ'd by proof,
That what is well done is done soon enough.
Festina lentè: Nam sat citò, si sat bene.

Thus having (as it were) considered the first part of the first dayes work, we may now come more nearly to that which is the beauty of it, I mean the Light, which some

some call Gods eldest daugheer, or the first distinguished creature, wherewith the Lord * decked the world as with a garment.

* Psal. 104. 2.

Sect. 2.

The creation of the light.

AND now concerning this bright creature, no sooner did God say, Let it be, but lo it was. He * commanded that it should shine out of darknesse, as speaks the Apostle; and that being separated and set apart from * the darknesse, the first of dayes might be, and Gods good works appear, beginning with the Lights proceeding to shew forth his exceeding glory.

* 2. Cor. 4. 6.

*Ex tenebris, dicitur eduxisse lucem, non ut ex materia (nihil enim tenebræ fuerunt, nisi negatio luceis) sed ut à contrario termino. Pare. in Gen. pag. 146.

But of this resplendent creature (without which the beauty of the rest could not be seen) there are no few opinions.

1. Some would have it a spirituall Light; and so under it they comprehend the creation of Angels. But surely in my judgement their opinion is the sounder who make it a naturall and materiall Light onely, such as now is in the Sunne, the *Index* of time, and the worlds bright eye. For as the office of the Sunnes light is now to distinguish between the Day and the Night; so was the office of this Light being commanded to shine out of * darknesse before the Sunne was made: which being made, was the subject ever after to retain it. If it were otherwise, or any other light, where is it now? shall we say that it is either extinguished or applied to some other use? surely I think not; because God (who made all by the power of his word) needed no instrument or help in the work of his creation: And therefore that Light which at the first made his works appear, is no spirituall Light; but such and the same that now is in the Sunne. And yet perhaps, as * *Aquinas* thinketh, it was but *Lumen informe, quod quarto die formatum est; An informed light, which on the fourth day had its perfect form.* And

*Which was the locall, but not materiall originall of it, as saith Pareus, *ibid.*

* *Aquin. Sum. 1. par. Quest. 70. artic. 1.*

Of Angels, and when they were created.

And as for the creation of Angels, it is not like that they were made this first day but on the fourth day: For it is very probable that there was the like order observed in making of the invisible world, which was in the visible; and that on the second day, not onely the visible, but also the invisible heavens were created; yet so as both of them remained as it were unpolished or unfinished untill the fourth day: For then as the outward heavens were garnished with Starres, so might the inward and highest heavens be beautified with Angels. This methinks is not obscurely pointed at in Job, chap. 38. vers. 7. *Where wert thou*, saith the Lord to Job, *when the starres praised me* (or *sang together*) *and all the sonnes of men shouted for joy?* it being here* evident that when the Starres were made, the Angels also had then their being, and rejoyced before God; which was but upon the fourth day of the creation. All this, I say, might well be thus although Moses doth not directly mention it; which was because he applyed himself to the simple capacitie of the people, describing the creation onely of sensible things, being that which at the first he intended, and did in plain tearms testifie in the beginning of his historie, when he said, *These Heavens, and this Earth*, of which I spoke before.

* See Dr. Willet on Gen. chap. 1. Quest. 33.

And further, were the creation of Angels comprehended under the creation of the heavens and light, what were this but to leave the literall sense (which is to be followed in the historie of the creation) and to cleave unto Allegories?

But secondly, concerning this Light, others think that the element of fire was signified by it, whose effect is light, and whose act and qualitie is to enlighten: which made one therefore say, that *The uncreated Light* (viz. God) *commanded this elementarie light to be, that so the thinner and higher element severed from the aire, might*

by

by his enlightning operation effect a lightsome shining, ---& the aire, according to the nature thereof, receive it: which to the fire was an essentiall propertie, ---to the aire an accidentall qualitie, approved of God, as good both to himself & the future creatures. Thus some. But others except against it, affirming that this light was moveable, by the presence of it making day, and by its absence making night: which could not have been, had it been the element of fire; unlesse it be more or lesse in one place then in another, and not equally disposed. Or, as *Pareus* answereth, it could not be the element of fire, because that is above the clouds (according to the common rules of Philosophie) and therefore in his judgement the fierie element was not untill the second day, being created with the *Expansum* or stretching out of the aire.

But unto these exceptions I think an answer may be framed, as I perhaps shall afterwards shew you.

Thirdly, if (as some have done) we should think that this was the very light of the sunne, and then in the sunne, or in such a cloud or subject as was the matter of the sunne, the text would be objected against it; which affirmeth that the sunne was not untill the fourth day: for the creation of that was but then, although the light was before.

Fourthly, *Aquinas* saith,* *Lux primo die fuit producta secundùm communem lucis naturam: quarto autem die attributa est lũinaribus determinata virtus ad determinatos effectus: secundùm quod videmus alios effectus habere radium solis, & alios radium lunæ, & sic de aliis.* Whereupon he concludeth, that howsoever it was, it was but an informed light untill the fourth day.

* *Aquin. Sum. part. 1. quæst. 70. art. 1.*

Now therefore, amongst a multitude of opinions which are besides these already mentioned, I (for mine own part) cannot but preferre this as the best; namely, that the light for three dayes space wanted a subject,

such as now it hath; and yet it did perform the same office which now it doth being fastened to a subject, or to the bodie of the Sunne, which is *Vehiculum lucis, A Charriot for the light.* For we may easily perceive that in the works of creation there is such an * harmonious order observed, as that there may be an union and reduction of all things of one kind to their own heads and centre.

* God made one proper centre for all things of one kind, unto which he reduceth them.

As for example, the upper waters must be severed by the out-spread firmament; and the lower must repair all to one sea, as their naturall subject: and as for heavy substances, they hasten downwards; and the light ones, they fly upwards. In like manner, that light which at the first was dispersed and fixed to no subject, doth presently (as soon as the sun was) unite it self unto that bodie, as now it is.

This of all other seemeth to me the best opinion to pitch upon, and the most probable in this kind: which may well be as an Embleme how God will one day gather his elect from all coasts of heaven to the participation of one glorie. S. Paul applieth it to our regeneration, thus; * *God, who commanded the light to shine out of darknesse, hath shined in our hearts*, &c. that *we, who were once darknes, are now light in the Lord.* And in this consideration I think we need not much dissent from them who would have the element of fire signified by it; which opinion was before mentioned: for howsoever it be that that element be now dispersed, or wheresoever placed, yet it might be that the first light shined from it; thus I say it might be, because we may not reason * *á facto ad fieri*, or from the order of the constitution of things in which they now are, to the principles of their institution whilest yet they were in making. And for further proof of this, I do easily assent to them * who have probably affirmed that the starres and lights of heaven contain the

* 2. Cor. 4. 6. & Ephe. 5. 8.

* Purch. lib. 1. cap. 2.

* Lyd. Praelect. Astron. cap. 4.

the greatest part of this fire; as afterwards in the fourth dayes work shall be more plainly shewed.

In the mean time this I adde, That the Light now made was that very thing which God himself called DAY. *For he called the Light* DAY, *and the Darknesse he called* NIGHT, Gen. 1. 5. By which it appeareth that this first Light was made in motion, and was created in the Eastern part of that Hemisphere in which Man was made. For unlesse it were moveable, how could it measure any space of time, or by an alternate course distinguish the Day from Night? Or if created in the middle or other then the Eastern part of Heaven, the first had not been *Dies unus, sed dimidius seu mutilus*, not one Day, but the half of a Day, or a Day in part, maimed and incomplete. And because the Evening is first mentioned, as the term of the artificiall Day; and then the Morning, which is the term of the Night and beginning of the next Day: thus much is further shewed, That the naturall Day is from Morning to Morning, as * Chrysostome noteth; and the artificiall, from Morning to Evening when the light absents her self and disappeareth.

This is the beauty of all the beauties else: for even all the beautie of the world had been as nothing if so be this bright shining creature had never been.

Gods eldest daughter, Oh how thou art full
Of grace and goodnesse! Oh how beautifull.

Du Bart.

Quest. But if God made the Light, was he not before in darknesse? *Answ.* No: for he needs not any created light, who is himself a Light uncreated; no corporall light, who is a spirituall one. *God is light and in him is no darknesse at all*, 1. John 1. 5. He made this Light for our mortall journey on earth; himself is the Light of our immortall abode in heaven: neither did he more dwell in this Light that he made, then the waters were the habitation of the Spirit, when it was said that *the Spirit moved upon the waters.*

* *Homil. 3. and Homil. 5. in Genes. So also Ambrose.*

But see, there was Night, Light and Day before the Sunne; yet now without it there is neither: which sheweth that we must allow God to be the Lord of his own works, and not limit his power to means.

And surely as it was before man was made, so shall it be after he is dissolved: For then, as the* Prophet speaketh, *The Sunne shall no more be thy light by day, neither shall the Moon give light unto thee: but the Lord shall be unto thee an everlasting light, and thy God thy glory.*

* Esay 60. 19.

Lastly, unto this amongst many things let me adde but one thing more. God made light on the first day; so Christ arose from death on the same day, being the first of the week: And he *is the true light which lightetheverye one that cometh into the world*: Of which light if we have no portion, then of all creatures man is the most miserable.

Sect. 3.

Of the intercourse between day and night.

WHat now remaineth? God called the light Day, and the darknesse Night: 'Tis true,

Th' Alls Architect alternately decreed,
That Night the Day, the Day should Night succeed.

Of both which we have more then manifold use and benefit. The night easeth the burden of the day; the day driveth away the terrour of the night. The night burieth our cares, & doeth what she can to drown all our griefs in a silent sleep: the day serveth for our needfull labours; is the wicked mans just terrour, the mother of truth, and true beauties onely glasse, wherein she may both see her self, and be also seen. The night serveth to temper the dayes exceeding drought, and to cool its heat; for by moistning the aire it makes the earth to fructifie: the day again warmeth the coolnesse of the night, melting the white hoarie haires of winters beard; and with a reviving, cherishing, and nourishing of things, as well sensible

sible as vegetative, addes life afresh into the dying Universe; serving (as I said before) for the needfull labours of man : For, as the Psalmist hath it, *The sunne ariseth, & then man goeth forth unto his work, & to his labour untill the evening*, Psal. 104. 22. And so also for the night, it is destinated or appointed for quiet and sleep, wherein the wearied bodies of living creatures are refreshed, and their strengths repaired : the noisome beasts now come forth and feed, lest coming in the day they might be a terrour unto men : For, as the Psalmist again recordeth, *Thou makest darknesse that it may be night, wherein all the beasts of the forrest do move* ; as the lions roaring after their prey, and the like, vers. 20.

But of this enough. And now last of all when this dayes work was done or brought to an end, God is said to view it, and behold there was nothing amisse ; That is, Moses, speaking according to our capacities, telleth us that God doth approve and ratifie that work now done, which before he purposed to make.

So Eve and Morn conclude the first of dayes,
And God gives to his work deserved praise.

CHAP. IIII.

Of the second day; and of such things as are pertinent to the work done in it.

Sect. 1.

Of the Expansum, *or stretching out of the Heavens.*

CONcerning this dayes work what it was, we find it thus expressed, *And God said, Let there be a firmament in the midst of the waters; & let it divide the waters from the waters. And God made the firmament; and divided the waters which were under the firmament, from the waters which were above the firmament: and it was so. And God called the firmament Heaven: and the evening and the morning were the second day,* Gen. 1. 6, 7, 8.

This is the narration of what was done. And here let us consider, first of the Firmament: then of the waters which it separateth: and lastly of the severall Heavens, together with the regions of the aire, and of such appearances as we use to see there: unto which if any thing else be met withall pertinent to this dayes work, it shall be added.

The word * *Rakiah* translated *Firmament*, signifieth *Expansum*, or *expansionem*, which is a stretching out; not onely from the earth, but about the earth: so that the world being mans house, the Firmament is as the vaulted roof of it: Or (as * *Hyperius* observeth) it is *tanquam theca*

* Junius, Gibbens, and others.

* *Meth. Theol. lib. 2. pag. 333.*

ca quadã, omnia quæ Deo ipso inferiora sunt, inclusa continens; as a certain husk, shell, or box, inclusively containing all things without the Heaven of heavens, or which are below that place where God doth manifest his glorie. Which also is further to be seen in the hundred and fourth Psalme, at the second verse, where it is said that *God hath stretched out the heavens as a canopie:* or, *extendisse incurvando cœlos tanquam conopeum*, as some reade it: by which comparison it seemeth that the Firmament is not so much *expansum ratione extensionis à centro, quàm circa centrum*; not so much a thing stretched out by reason of its distance from the centre, as about the centre.

And again, we call it the Firmament, because in the stretching out it was not weakened, but made strong: In which regard Expositours do well observe the difference which is between *Rakiah* and *Karah*. For, the word which is here used, they reade it *Rakiah*, and * say that it doth properly signifie a thing made strong by stretching out; being therefore contrary to the word *Karah*, which is to break in stretching.

And the Greeks likewise, that they may give a full expression according to the proprietie of the word, do translate it and call it Στερέωμα, from the verb Στερεόω, signifying to make strong or firm: and thus also the ancient Greek Philosophers observed, calling the whole compasse of the heavens * Στερέμνιον, meaning the very utmost bound of them, which is not so weak that it should be broken in the stretching; but strong, and farre more free from a fluid nature then is that aire which the concave of it keepeth and holdeth.

The Latines also call it *Firmamentum*; and we, in our speech, the *Firmament*: which in respect of its extension is the whole compasse of heaven on all sides; being as it were the case of the visible world and all things in it, as hath been shewed.

* See Gibbenson Gen. chap. 1. quest. 5.

* See Lydiats *disquisitio Phys. cap. 10. pag. 196.*

Sect. 2.

Of the waters above the Heavens.

BUt from the concavitie of this firmament, we may passe to the convexitie of it. And now if it be considered as it is convex, then we shall come to the examination of that which God assigned as proper to it most especially; viz. that it separate the waters from the waters. For this out-spread firmament is by its office to separate; and to be, not above the waters, but between them: and therefore those waters which it separateth, cannot be such waters as are in the clouds, but rather above the concave of the firmament.

If they be such as are in the clouds, then are they rather in the middle of the firmament, then the firmament in the middle or between them. And this made one argue thus, saying, * *Expansio in nubium regione aut finitur, aut ulteriùs extenditur: si ibi finitur, stellas infra nubes constitutas esse oporet. Sin ulteriùs extenditur, supercœlestes aquas ab inferioribus expansio non sejungit, sed nubes potiùs unam expansionis partem ab altera dispescunt. Atqui utrumque horum à Mosis narratione absonum. Tutissimè igitur aquas cœlestes supra sidera esse constitutas; totumque illud, quod à globo terræ & aquæ sursum expanditur, cœli vel aëris nomine contineri sentiemus.* That is, *The out-spread firmament either is ended in the cloudie region, or is further extended. If it be ended there, then the starres must needs be under the clouds,* because they are within the firmament, Gen. 1. 6. *But if it be further extended, then the supercelestiall waters are not separated by the firmament, but rather the clouds sever one part of the firmament from the other: both which are against Moses his narration. Therefore we may safely think that the celestiall waters are above the starres, &c.*

* Goclen. disput. 28. sect. 29.

In which regard it may be also thought that both these waters

waters dropping from clouds in the aire, and also all other waters under the canopie of Heaven, or within the concavitie of this *Expansum*, are but the lower waters: and those other, which are separated from them, must be in an higher place, viz. above the firmament, and so shall they be divided by the firmament; otherwise not. To which purpose * *Du Bartas* thus,

I'le rather give a thousand times the lie
To mine own reason, then but once defie
The sacred voice of th' everlasting Spirit,
*Which doth so * often and so loud averre it,*
That God above the shining firmament,
I wot not, I, what kind of waters pent.

Or, as * *Hyperius* also writeth, *Assentiemur Mosi, ac simpliciter statuemus aquas non tantùm infra firmamentum, ubi in portiones & quasi regiones certas ea ipsa sunt distributa, aliaq; per aërem circumvehuntur, alia terris sunt adglutinata; verùm etiam super illud esse alias undique circumfusas.* That is, *Let us assent to Moses, and plainly determine that there are not onely waters below the firmament, as it were divided into certain portions and regions, some of them carried about through the aire, some fastened to the earth; but also that there are other waters above the firmament spread round about it.*

Which thing is also thus further manifested; because those waters that are separated by the firmament, are to be at all times separated. For God, in the creation of this firmament, did not onely command that it should separate, but also that it should be separating: that is, Let it *continually separate or divide the waters from the waters; *quasi voluerit nullũ esse tempus quo non distinguat; as if he would have it that there should be no time wherein it might not distinguish between the one and the other.* Which as it cannot be done unlesse there be alwayes waters

* In his second day of the first week.

* Gen. 1. 7. Psa. 104. 3. Psal. 148. 4.

* Hyp. Meth. Theol. lib. 2. pag. 335.

* Ainsworth on Gen.

* Lydiat. disquisitio Phys. cap. 10.

ters to be distinguished; so neither can it be pertinent to those vvaters in the clouds, because the aire is often clear, and those bottles of rain are not alwayes there.

* Jer. 10. 13.

And again, it is from the vapours drawn from * belovv that clouds & rain come: vvhich cannot at all times be; but then onely vvhen there is a naturall concourse of causes to effect it. And then again vvhen they are there, they be soon gone: for the rain, proceeding from those vapours vvhich vve call the clouds, stayeth not long in the aire, but forthvvith falleth dovvn again and so by little and little the vapour consumeth and the cloud is gone. Hovv can it therefore be that these should be those superceleſtiall vvaters separated from all other vvaters by the firmament, seeing the firmament is above them? and not onesy so, but also their proper place is here belovv, being but at times dravvn from hence, and then it is as it vvere against their vvills, vvhich makes them therefore hasten hither again with all the speed they can: vvhereas on the contrary the firmament is to be betvveen those vvaters, and not over them; separating them not at times, but continually.

Neither may it seem strange how the out-firmament can be able alwayes to uphold them, seeing (as hath been said) it was made strong by stretching out, lifting then the waters up with it, and therefore well fitted for this office, and can no more fall then * the heaven it self, whose beams or rafters are laid in the waters as the Prophet speaketh, Psalme 104.3. And hereupon it also was that noble *Bartas* said,

I see not why mans reason should withstand,
Or not believe that He whose powerfull hand
Bay'd up the Red sea with a double wall,
That Israels host might scape Egyptian thrall,
Could prop as sure so many waves on high
Above the Heav'ns starre-spangled canopie.

* *Decidere non magis quàm cœlum ipsum queant.* Hyper. Meth. Theol. lib. 2. pag. 335.

Thi;

This was his opinion concerning the waters separated by the firmament; of which opinion are sundry more.

But on the contrary side are other some who are of another mind, affirming that they are meant onely of those waters in the clouds: for (say they) the aire is called the firmament; so also is the skie, &c. And of the clouds it is said in Job, that * *God bindeth up his waters in thick clouds, & the cloud is not rent under them.* So that, first as every part of the water is called by the name of water; in like manner every part of the firmament is called by the name of the firmament: in which regard those waters in the clouds, although no higher then the aire, may be taken for those waters which the firmament doth separate: and secondly, that place in Job sheweth no lesse, making it appear, how and in what manner the waters are separated by the firmament.

The contrary and their reasons.

* Job 26. 8.

Furthermore, *Ex ipsa nubium natura*, saith * *Pareus*, *From the very nature of the clouds* this appeareth to be so: for what other thing are the clouds but waters separated by force of the diurnall heat, and by the cold of the aire made thick? whereupon (as *Plinio* calleth them) they are said to be* *Aqua in cœlo stantes, Waters standing in the heavens.* Also, it may be added (saith *Pareus*) that Moses makes mention but of two kinds of waters *superas, & inferas, the higher & the lower:* but the clouds are waters, as hath been shewed; and no low waters; therefore they are the upper waters: unlesse there be three kinds of waters, which is contrary to Moses.

* *In Gen. pag.* 170.

* *Plin. lib.* 31. *cap.* 1.

Besides, this (saith he) is confirmed by the grammaticall construction of the words. For Moses saith not that it divided from the waters which were *supra Expansum*; but thus, viz. from the waters which were *desuper Expanso*: The sense therefore is, not that the waters were carried up above the whole *Expansũ* or Firmament; but rather that they were carried upwards, so, as that with the

the firmament they were *supra & desuper*; that is, *above and on high.*

Also, the name of heaven confirms no lesse: for (saith he) the *Expansum* is called according to the Hebrews *Schamajim* or *Shamajim*; from *Sham, There* & *Majim, Waters*: which derivation is common. And therefore those upper waters are not quite above the *Expansum*, or the Firmament; but are *there*, that is, in the Firmament, namely in the middle Region of the aire.

The reader is left unto his free choice.

Thus we see the difference concerning these waters. And now let the Reader choose which opinion likes him best. But for mine own part I like this latter worst: yet let me not tie another to be of the same minde any further then he pleaseth: for it is no matter of faith, and therefore we have our free choice according to the best reasons and most forcible demonstrations. Wherefore let me proceed a little further, that thereby (as near as I can) I may set down that which seemeth to me the best meaning and nearest to the truth.

The matter in question is cleared by answering the contrary arguments.

First then I answer, that they do mistake who divide the *Expansum* into parts, as if in so doing they could absolutely clear the matter in question: for it is not a part of the Firmament that is appointed to this separating office, but the whole Firmament; as any one may see, if he do but observe the words of God, producing and assigning it. Neither do we find that the firmament is any more then one. To divide it into parts so as they imagine, is not to divide it into parts, but rather to make so many Firmaments as they imagine parts; like as every scale of an onyon is a severall and differing scale, & not one the part of another. And besides, neither is there the same reason between the parts of water and these supposed parts of the Firmament: for then when God made the Sunne, Moon, and Starres, he would not have said, Let them be *in the Firmament*, but *above the Firmament*; for they

they are farre higher then the clouds; yet, I say, they being higher then the clouds, he is said to place them but in the Firmament: and they being no more but in it, how improperly do we affirm those things to be above it, whose places are lower then either Sunne, Moon, or Starres!

The sunne, moon, and starres, are higher then the clouds, and yet they are not said to be above the firmament but in it: the fowls also flie in it, but not above it.

And secondly, admit Job tells us that there are waters bound up in thick clouds; doth not Jeremie also tell us that they are drawn up in * vapours from the earth? which (as hath been shewed) cannot at all times be, but then when there is a naturall concourse of causes to effect it: whereas the out-spread Firmament is to be alwayes between them, separating them, not at times, but continually. And as for the rain proceeding from those waters which we call the clouds, it stayeth not long in the aire, but forthwith falleth down again; shewing that of right their proper place is here below; and therefore we make not three kinds of waters (as if we would be contrary to Moses) in saying that there are other waters above the concave of the Firmament, which on this second day of the worlds creation were separated from all other waters.

* Jer. 10. 13.

Wherefore observe but this, they being separated on this second day, how could they be such as the aire affordeth? for the middle Region of the aire, which is the place for the clouds, was not untill the third day: Not untill the third day, I say, because it is found by experience, and from sufficient witnesse proved true, that the tops of the highest mountains do reach up unto that place which we call the middle Region of the aire, being some of them more loftie then the clouds.

There was no middle Region untill the third day.

As for example, in *Japan* there is a mountain called *Figeviana*, which is some certain leagues higher then the clouds. And in *Ternate* among the *Philippine* ilands there is a mountain, which (as Mr. *Purchas* in his pilgrimage relateth)

lateth) is even angry with nature because it is fastened to the earth, and doth therefore not onely lift up his head above the middle Region of the aire, but endeavoureth also to conjoyn it self with the fierie Element. And of the mountain *Athos* between *Macedon* and *Thrace*, it is said to be so high, that it casteth shade more then * thirty & seven miles. Also the mount of *Olympus* in *Thessalie* is said to be of that height, as neither the winds, clouds, or rain do overtop it. And (although I omit sundry others of exceeding height) it is also written of another mount so high above the clouds, that some who have seen it do witnesse that they have been on the top of it, and have had both a clear skie over their heads, and also clouds below them pouring down rain and breaking forth with thunder and lightnings: at which those below have been terrified, but on the top of the hill there was no such matter. This surely was that mountain which *Mr. Lydiat meant when he said, that *etiã æstivis diebus, even in the sũmer time*, when the clouds are at the highest, those on the top of the mountains have had fair weather, and withall perceived that there was plentie of rain about the middle height of the same hills.

* Viz. 300 furlongs which make 37 miles and an half.

As *Atlas*, *Pelion*, *Ossa*, *Caucasus*, and *Tabor*, which last riseth up 30 furlongs, as *Josephus* writeth.

* *Lyd. de orig. fontium, cap.* 10.

Thus we see that there are lofty mountains: And indeed their loftines is the cause of a middle Region: for the hills, hindering the aire from following the motion of the heavens, do make it about their tops a fit & convenient place to thicken these vapours into clouds, which by the attractive power of the heavenly bodies are drawn up thither.

Wherefore (that I may conclude) the place of the middle Region being both caused and also overtopped by sundry high mountains, it will appear that there was no middle Region of the aire untill the third day, because the waters were all over the earth, and standing above the hills untill that very day: For then, and not before, God gathered them together unto one place, and made the

the drie land to appear, which before was covered with waters as with a garment, Psalm. 104. *Rarior aqua*, saith one, *velut nebula, terras tegebat, quæ congregatione densata est; The thinne water, like a mist or wet cloud, covered the earth, which by gathering together was made thick*; In which regard it may be said, saith* *Aquinas*, that it was as naturall for the water to be every where about the earth, as for the aire to be about both water and earth; yet nevertheless, *propter necessitatem finis*, saith he, *for the necessitie of the end*, namely that plants and living creatures should be upon the earth, it was meet that the earth should be so uncovered, and the waters so gathered, that the drie land appear. Now this was a work pertinent unto the third day; and before this work done there could be no middle Region: and the middle Region being on this day and not before, how can the waters in the clouds be those waters which were separated by the out-spread Firmament on the second day? Neither do I here argue *à facto ad fieri*, because in the very creation of this Firmament, God then said, *Let it be between the waters*; that is, even then beginning its office and act of separating them. Which that it is even so, we see he speaketh next concerning the lower waters, and makes no more mention at all of those upper ones, because he had already done with them, and left them in their place unto which he had appointed them.

* *Aquin. Sum. par. 1. Quæst. 69 Art. 1.*

But furthermore, this tenet is not a little helped by a consideration of the cataracts or windows of heaven which in the dayes of Noah were opened, and poured down rain by the space of fourty dayes: For methinks the clouds could not be those windows of heaven, because it rained fourty dayes, and before it left raining the waters were higher then the hills, being, when fourty dayes were ended, fifteen cubits above the highest mountains, as in the historie of the Floud is manifest.

Of the windows of heaven opened in the Floud.

And

And hereupon it was that one once by the same reason concluded and said, that either it did not rain fourty dayes, (which assention we are sure is false) or else it rained from some other where then from the middle Region : For seeing the middle Region it self was drowned before it ceased to rain, it cannot but be that the rain descended from some higher place.

1 *Object.* But perhaps some may think that the clouds mounted higher and higher as the waters increased ; insomuch that as the waters by little and little gat above the mountains, so did the clouds.

Answ. This cannot be ; because that which makes us distinguish the aire so as it may have a middle Region, is nothing else but the differing temper that it hath, both from the upper and lower Region ; and this differing temper is caused by the hills, which hindering the aire from following the motion of the heavens, do make it a fit place to thicken those vapours into clouds, which by the attractive power of the starres and planets are drawn up thither ; as already hath been shewed, and as afterwards shall be touched when I come again to speak of the severall Regions and their tempers ; shewing you that it is an Axiome undeniable, that the farnesse from a circular motion gives quietnesse, coldnesse, and heavinesse ; even as the nearnesse to it gives motion, heat, and lightnesse.

2 *Object.* Or secondly, perhaps some may think that the hills and mountains were not before the Floud, but made by the violence of the waters ; And that Moses, when he would describe how high the waters were, doth but shew us that they were higher by fifteen cubits then the highest mountain that was then in his time : which he might well say, and make such a comparison, although there were no hills before the floud.

Answ. That which hath been said in the former answer

swer concerning the cause of the middle Region, doth sufficiently stop this last objection, unlesse it be granted, that there were no clouds untill the Floud had made the hills: And indeed if any such thing be granted, then all is granted, and the controversie quite ended concerning these waters above the Heavens.

But besides that answer, I hope to make it appeare that mountains, valleys, and plains were created in the beginning, and were before the Floud in the dayes of Noah.

That hills and mountains were not caused by the Floud.

For first, if hills were caused by the Floud, then it must be that the waters suffered an extreme violent motion: but the waters being over the whole face of the earth had nothing to hinder them from their own free motion, nor any thing to compell them to a violent motion; such I mean as should make them work such wonders as are supposed. Had they been overtopped by any thing, then indeed running from one place to another there might have been a repercussion, and by such contention more strange accidents then were, might have been produced, the making of hills, and the like.

Or secondly, if there were such a violent motion, (as questionles the waters moved untill all places were filled alike, with no small violence) yet the violence was not so great as to be the parent of the hills and mountains; for then without doubt it would have been so forcible also as to have turned rivers, & changed them from one place to another, cast down all manner of buildings and structures, rooted up all trees and the like, so that after the Floud nothing should have had the same name, bounds, and description which before it had, neither would the memories of the former ages have been but buried from all succeeding time; which we know is otherwise: for if it were not, it is likely that Moses speaking of the site of Paradise, and setting down all the

rivers of it exactly, would have specified it in his historie, that thereby after-ages looking for those places might not mistake or suspect the truth of his relation. Neither have we just cause to think that all buildings & ancient monuments of the Fathers before the floud were extinguished in the floud: For it is reported by * *Pomponius Mela* and *Plinie* concerning the citie *Joppa*, that it was built before the floud, & that *Cepha* or *Cepheus* reigned there; which is witnessed by certain ancient altars, bearing titles of him and his brother *Phineus*, together with a memoriall of the grounds and principles of their religion. And of the citie *Henoch* there is a much like relation. But what need I mention more, seeing* *Josephus*, a writer of good credit, affirmeth that he himself saw one of those pillars which was set up by Seth the sonne of Adam? and this for the truth of it was never questioned, but warranted by all antiquitie.

* *Pom. Mela, lib. 1. cap. 11. & Plin. lib. 5. cap. 13.*

* *Antiq. lib. 1. cap. 3.*

Moreover, seeing the dove was twice sent out of the Ark, & returned with an olive branch at her last return, & not at her first, it is not without reason that we think the trees were not torn up by their roots, but remained still fixed in the ground even as they had done before; for, if the trees had been swimming or floating upon the waters (as some may think) then the poore dove might have found one branch or other as well at the first as second time. Besides, when she did bring any thing, Noah took it not as a token what havock the floud had made, but as a signe that the waters were decreased: she therefore plucked it off from some tree growing on the earth, and not floating on the waters.

And last of all (although I say nothing of the delectation and profit of the mountains, which do thereby even amplifie the goodnesse of God in his works, creating & not occasioning them) I shall need to point you no further then to the plain text it self, which doth most plain-

ly

ly tell us, not that the waters were as high as the highest mountains which are now, or were then when Moses wrote his historie, but that even from the beginning there were hills and mountains whose loftie tops in the universall floud were covered with waters: for thus stand the words, * *And the waters prevailed exceedingly upon the earth; and all the high hills which were under the whole heaven were covered. Fifteen cubits upward did the waters prevail; and the mountains were covered.* Whereupon, as I remember, * one writeth thus, saying that this judgement was admirable, seeing there are mountains, as *Atlas, Olympus, Caucasus, Athos,* and other such, that are so high, as their tops are above the clouds and winds (as Historiographers do report it) and yet see, all these are covered: and these being covered, the middle Region must needs be drowned; and that being drowned, how could the clouds be those windows of heaven which poured down rain for fourtie dayes? And those not being the windows of heaven, it cannot but be that the waters above the heavens are in a more remote and higer place, even above the concave of the out-spread Firmament.

* Gen. 7.19,20.

* Ainf. on Gen.

3. *Object.* But perhaps you may think that I now pinch too much upon reason concerning this of the Floud, seeing it was caused not by naturall and ordinary means, but by the extraordinary power of God.

Answ. To which it is answered, that this Floud was partly naturall, partly supernaturall; and to shew how farre nature had a hand in this admirable effect, we may distinguish with them, who say that an effect may be called naturall two manner of wayes: first, in regard of the causes themselves: secondly, in regard of the direction and application of the causes. If we consider the mere secondary and instrumentall causes, we may call this effect naturall; because it was partly performed by their

help and concurrence: but if we consider the mutuall application and conjunction of these second causes together with the first cause, which extraordinarily set them on work, we must needs acknowledge it to be supernaturall.

Now then, although we have built upon reason, and so found that before fourtie dayes fully ended the middle Region it self was drowned, whereupon it could not rain from thence; yet in so doing we do not argue amisse: for it is no whit derogating from the power of the Almighty to ascend up higher till vve find the cause of this long rain, and also the place from vvhence it came, seeing that vvhen vve have so done vve shall plainly find, that in regard of the direction and application of the cause it vvas extraordinarily set on vvork by a divine dispensation; and so the effect was supernaturall.

I may therefore now proceed: and that I may make the matter yet a little plainer concerning these cataracts or windows of heaven, and so by consequence of the waters also above the heavens, this in the next place may be added; namely, that Moses setteth dovvn tvvo causes by vvhich there grew so great an augmentation of vvater as vvould drovvn the vvorld: the one vvas the fountain of the great deep: the other vvas the opening of the vvindows of heaven. Now if these windows were the clouds, then it seemeth that the vvaters vvere increased but by one cause: for the clouds in the aire come from the vvaters in the sea, vvhich by descending make no greater augmentation then the decresion vvas in their ascending. And although it may be thought that there are waters enough vvithin the bovvels of the earth to overflovv the vvhole earth (vvhich is demonstrated by comparing the earths diameter vvith the height of the highest mountains) yet seeing the rain-vvater is made a companion vvith the great deep in the augmentation of the drovvning vvaters,

I

I see no reason why that should be urged against it; especially seeing it is found that the earth emptied not all the water within her bowels, but onely some: For thus stand the words,* *The fountains also of the deep, and the windows of heaven were stopped, and the rain from heaven was restrained:* their store therefore was not spent when they had sufficiently drowned the world, but their fury rather was restrained, when they had executed Gods purpose by climbing high enough above the hills. Gen. 8.2.

Cardinall *Cajetane* was conceited that there was a mount in Paradise which was not overflown, and there forsooth he placeth *Henoch*: The like dream also they have amongst them concerning *Elias*: And, as their champion and Goliah* *Bellarmine* is perswaded, all those mountains onely were overflown where the wicked dwelt. * *Josephus* also reporteth out of *Nicholas Damascenus*, that the hill *Baris* in *Armenia* saved many who fled thither for succour. But these are dreams and devices, which are soon overthrown by Moses in his foresaid evident text; where the words are so generall, that they include all and every mountain, under, not onely the Aiery heaven (as *Cajetane* collecteth) but under the whole Heaven without exception.

* Dr. Will. *ex Bel. de gra. pri. hom.*
* *Antiq. lib. cap. 4.*

And now after all, what hindereth that there should not be waters above the concave of the Firmament, and that the opening of the windows of heaven should not be more then the loosing of the clouds? For it is affirmed, and not without reason you see, that the rain, or a great part of it which fell in the universall Flood, came from an higher place then the middle Region of the aire: and that the upper waters are to be above the Firmament, and not the parts of it, is an assertion well agreeing to Moses his description of this second dayes work. For (as hath been shewed) concerning the fowls and stars, it is true that they are but in the Firmament, and not above

it: neither is there any more Firmament then* one, seeing Moses mentions not a second. The fowls indeed fly above the earth (as the text it self speaketh in Gen. 1. 20. but not above the Firmament: their course being (as *Junius* reads the place) *versus superficiem expansi cœli*; or *ante expansum*; or *coram expanso cœli*; but never *supra expansũ*. And as for the starres, the text likewise saith, ver. 15. *Let them be for lights in the out-spread Firmament*; mentioning never more then one and the same Firmament. But for the waters, it is otherwise: The Firmament is appointed to separate them, as being between, and not above them. *Esto expansũ inter aquas* (it is learned *Junius* his right version of the place) *ut sit distinguens inter aquas. Fecit ergò Deus expansũ quod* distinguit inter aquas quæ sunt sub expanso, & inter aquas quæ sunt supra expansum.* That is, *Let there be a firmament between the waters*, &c. *Between the waters*, as having waters above it: And how unlike it is, that the upper waters should be placed otherwise, let the former reasons witnesse: For, all things considered, we need not stand so much upon *Pareus* his reading *Super, quasi in expãso, & desuper expanso*, as if they were but above, or on high within the concave, as are the fowls and starres: this (I say) we need not stand upon, seeing *Junius* readeth *Supra expansũ*, without any such nice salving, although he thinketh with *Pareus* that these upper waters are no higher then the middle Region of the aire. And also admit that some derive the word *Schamajim* or *Shamajim* (which signifieth *Heavens*) from *Sham, There*, or *in that place*; and from *Majim, Waters*; concluding thereupon that these waters which we now speak of must be *There*, viz. *in* the heavens, and not *above* them: although some (I say) make this derivation, yet others derive the same word otherwise: And no* few be there, who, not without reason, do suppose that it is no derivative nor com-

*Necessariò fatendum est, si modò nubes sint superiores ille aquæ, duo esse expansa, & inà duo, ut de fabrica illius quod duorũ nullò est nobilius nulla fiat mentio, Lyd. de orig. font. cap. 10.

* *Distinguit*, a word of the present tense, noting the present performance of that which it was made for.

* As Val. Schindl. & Fagius upon Gen. chap. 1. out of Aben Ezra.

compound word at all; but rather that the Ismaelitish word *Schama*, which signifieth nothing else but *High* or *Above*, doth proceed from this word *Schamajim* which in English we reade *Heavens*: In which regard the Etymologie helpeth nothing to prove the adverse part.

And yet (as I said before) let the reader take his choice: For perhaps he may now think after all, that if there be waters above the starry heaven, and that part of those waters descended in the time of the Flood, that then the Heavens would have been corrupted and dissolved (as some have said) the rain falling through them from the convexitie of the out-spread Firmament.

Sect. 3.

An objection answered concerning the nature of the Heavens, examining whether they be of a Quint-essence.

But concerning this it may be said, that it is not known whether the heavens be of such a nature, as that the rain falling through them shoud dissolve or corrupt them. Those indeed who follow *Aristotle*, make them of a *Quint-essence* altogether differing from things compounded of the Elements: But for mine own part more easily should I be perswaded to think that there is no such fifth essence in them, but rather that they are of a like nature with the Elements, or not much differing.

For first, although *Aristotle* deny any change or alteration to have been observed or seen in the heavens since the beginning of the world; yet he was deceived: For *Hipparchus*, who had better skill in Astronomy then ever *Aristotle* had, he (as* *Plinie* witnesseth) telleth us out of his own diligent and frequent observations that the heavens have had changes in them; for there was in his dayes a new starre like unto that which was once in *Cassiopea*. And that which is beyond the authority of the

* *Plin. lib. 2. cap. 26.*

the greatest philosopher, doth also witnesse as much; I mean the sacred voice of the everlasting Spirit, affirming that the two parts of this Universe, the heavens as well as the earth, do both of them * *wax old even as doth a garment*: which is as if it should be said, that by little and little they are changed, tending so long to corruption till at last shall come the time of their dissolution.

*Psalme 102 26.

What great difference then can there be between the heavens and things here below, seeing in their own natures both of them do tend to corruption, and are subject to mutation?

Besides, as it is with Man who is the little world, so certainly it is with *Macrocosme* who is the greater world: but man changeth and declineth daily, not being now as heretofore he hath been; and so also as a good consequence it must follow, that the greater world doth also suffer change, and, by declining, alteration. That man declineth, * saith one, is a thing most manifest: For men are of lower stature, lesser bones and strength, and of shorter lives then their forefathers were. Now from whence cometh this but from the declining estate of the greater world? The earth, we see, which is the lower part of it, is not so fruitfull as before, but beginneth to be barren like the wombe of Sarah; neither do the fruits which she bringeth forth, yield so much nutriment as heretofore they have done. And how cometh that to passe but because the heaven also fainteth? For the Planets wax old and cannot afford so great virtue and influence to these lower bodies, as in times past they did; which * *Plinie* and *Aulus Gellius* testifie. And indeed this must needs be a manifest proof, seeing lesse and weaker bodies are conceived every Age in the wombe of nature, that nature therefore waxeth old and weary of conceiving.

* Dove confut. of Atheis. chap. 14.

* *idem. ex Plin. lib. 7. cap. 16. & ex Aulo Gell. Noct. At. l. 13. c. 1.*

Also,

Also, saith he, if a man do but behold the face of heaven, the *Moon* looketh pale and wan, *Mars* lesse rubicund, *Sol* lesse orient, *Jupiter* not of so amiable and favourable countenance, *Venus* more hypocriticall; and all the rest both of the wandring and fixed starres more weak and suspicious then they did before. That mighty *Giant, which was wont to runne his unwearied course, now waxeth wearie, as if he would stand still in heaven, as he did in the dayes of Joshua; for he shineth more dimmely, and appeareth more seldome then before, being much nearer to the earth then of ancient times. For, (if we may give credit to the calculations of the chief masters in Astronomie) the Sunne, quoth *Copernicus*, and after him also *Stofler*, is nearer to the earth then it was in the dayes of *Ptolomie*, by the space of twenty six thousand, six hundred and sixtie miles: or (as *Philip Melanchthon* saith) nine thousand, nine hundred, seventie and six miles; to whom (saith * *Dieterious*) assenteth that famous Mathematician of our age, *David Origanus*, in his Prognostication for the yeare of our Lord 1604.

* Psal. 19. 5.

* *Diet. Postill. Dom. 2. in Advent.*

All these are proofs: and although we do not greatly contend concerning this last allegation of the Sunnes approch so near us, yet nevertheless the assertion in generall is true enough, that the heavens as vvell as the earth, as they grovv older and older, do suffer change, and in that regard their natures cannot but be much alike.

Unto vvhich adde this, namely, that these visible heavens, of vvhich vve novv speak, vvere taken from that masse or lump vvhich lay here belovv, & that the vvhole lump vvas created at once; in vvhich regard it cannot be denied that they differ *toto genere* or altogether, but that they are of a much like nature vvith inferiour bodies or things here belovv. And as for *Aristotle*, he never would so earnestly have defended the contrary, had he not knovvn

known that it was an excellent means to colour that which he also held concerning the worlds * eternitie.

* *Phys. lib. 8. cap. 1. & alibi.*

But besides all this, the observations of our best and modern Astronomers make much against him: for they have modestly & manifestly proved, that not onely new starres, but comets also have been farre above the moon. As for example, that strange starre which once was at the back of *Cassiopea's* chair, was of an extraordinary height above it; for it shined without any difference of Aspect, Parallax, or diversitie of sight, even untill all the matter whereof it consisted was consumed; having alwayes (as the observers thereof do witnesse) one and the same station to every of the starres, both in all climates, and also in all parts of the heaven, no diversitie of sight at all observed: all which in the lowermost Planets is otherwise, and perceived most of all in the moon, because the Semidiameter of the earth (according to which quantitie we dwell from the centre) hath a sensible bignesse unto the distance of the moons sphere from us. Had therefore that New starre, Comet, or what you please to call it, been lower then the moon, and not in the starrie heaven, then (like the inferiour Planets) it would have suffered a Parallax or diversitie of sight, and never have kept such a regular motion as it did; contending not to be overcome of the starrie heaven in its motion, but to keep as it were an equall pace with it: thereby shewing that it was even in the Ethereall heaven it self. For this is a rule, that by how much a starre is higher then the earth, by so much it imitateth the highest heavens in their daily motion.

Neither was it this starre alone but others also after it, even Comets themselves, whose places were found to be above the moon: for observing more diligently and exactly then in former times, the observers could easily demonstrate this truth also: thinking thereupon that many of those Comets which have been seen in former ages,

ages, vvere burnt out, even in the ſtarrie heaven it ſelf, and not ſo many of them belovv the moon, as generally (vvithout ſerious obſervation) have been ſuppoſed.* *Longomontanus* proveth this, both in that laſt Comet vvhich vvas ſeen in the yeare 1618, and alſo in other Comets before it. And novv vvhat of all this? Nothing but onely thus: *viz.* If Comets be burnt, conſumed and vvaſted in the ſtarrie heavens, it ſeemeth that there is no great difference betvveen them and things here belovv: for if there vvere, it might be thought that they vvould not ſuffer ſuch earthly matter to aſcend up their territories; ſuch, I ſay, as doth either vvholly or in part compoſe them. Wholly or in part I adde, becauſe (perhaps) even the heavens themſelves may afford ſome matter tovvards the generation of them eſpecially if they be* nevv ſtarres, ſuch as *Ariſtotle* never ſavv; vvherefore he vvrites that a Comet conſiſteth altogether of an hot, drie, and a kind of oylie exhalation dravvn from the earth: and queſtionleſſe in ſuch as are utterly belovv the moon it is even ſo; but if they be higher and continue longer, they, as vvell as nevv ſtarres, may have ſome help from ſuch matter as the heavens afford tovvards the generation of ſtrange appearances: vvhich though they have, yet that they have no earthly matter is not excluded, becauſe next under God the efficient cauſe of theſe things is attributed to the ſtarres and their operation; for vvhen they are aptly and conveniently placed and aſpected, then by their povver, vvorking upon things here belovv, they dravv up hot, drie, and oylie exhalations, and theſe exhalations afford unto Comets that matter vvhereof they conſiſt. *Ptolomie* attributeth much in this kind to *Mars* and *Mercurie*; and ſo do many others elſe beſide him: and vvhy the yearely aſpects of theſe ſtarres do not alvvayes produce ſuch effects, is becauſe they are not alvvayes aſpected in the ſame manner, but ſometimes in one part of

* *Lib. de novis cœli Phænom.*

*For new ſtarres Tycho affirmeth it, *lib. de nova ſtella.*

of the heavens, ſometimes in another, and cannot therefore produce their intended effects, vvithout either the meeting or avoiding of apt or inconvenient occurrences.

But I conclude, and do yet affirm that the nature of the heavens is certainly ſuch, that the vvaters above the heavens might paſſe or iſſue through them in the time of the Floud, and yet the heavens not be diſſolved, or ſuffer damage by their falling; damage, neither in corrupting them, nor yet in leaving a vacant place by coming all avvay: of vvhich in the fourth dayes vvork, vvhen I come to ſpeak of the ſtarres, I ſhall adde yet ſomething more.

CHAP. V.

How to understand the word Heavens; *and of the severall Regions of the aire, together with a consideration of such appearances as we use to see there.*

Sect. 1.

ND novv to go on vvith the residue of this dayes vvork: *God* (saith Moses) *called the firmament Heavens*, &c.

By *heavens* in this place Moses meaneth onely the visible heavens, because he speaketh onely of the visible part of the vvorld. And yet the same vvord vvhich is here used is sometimes put for the *aire, vvherein vvinds, clouds, and fovvls do flie: sometimes for the * upper Firmament, vvhere the sunne, moon, and starres are set: and sometimes for the high places, vvhere *Angels dvvell. And hereupon it vvas that S. Paul mentioned the third *heaven, vvherein he savv things unspeakable.

The first of these is like to the outvvard court of Solomons temple, and is the most open to us.

The second is like his invvard court, lesse open, and abounding vvith starrie lights or lamps never going out.

And the next is as the *Sanctum Sanctorum*, vvhither he is entred once for all, vvho is a Priest for ever, and maketh intercession for us.

In

* Dan. 7. 2, 13.
*Psalm. 8. 9. Gen. 1. 16. 17.
* Math. 22. 30.
* 2. Cor. 12. 2.

c Bish. Halls ontemplations.

In the two lowest is no felicitie; for neither the * fowls nor starres are happie. It is the third of these alone where the blessed Trinitie enjoyeth it self, and the glorified spirits enjoy it.

And questionlesse in this highest part must needs be more then exceeding glorie, seeing the other two within the concave of the Firmament are so full of wonder.

But of the one of them I shall need to speak little in this dayes work: yet of the other under it, as being more pertinent, something must be added.

Sect. 2. Parag. 1.

Of the Aire and the severall Regions in it.

WE may therefore now (if you please) look into the Aire: and here, following the common path, and separating it from the starrie heaven, I must say that it is divided into three stages or Regions: although I verily think (as afterwards shall be shewed when I come to speak of the starres) that all this space, even from the earth to the eighth sphere, is nothing else but aire.

The highest Region.

The highest Region is said to be exceeding hot, and also drie, by reason of the neighbourhood that it hath with the fierie element (as is said) and with the starres; by the force of whose beams it receiveth heat, which is also much increased by following the motion of the heavens.

The lowest Region.

The lowest Region is somewhat contrary; for it is said to be hot and moist; hot chiefly by the reflection of the sunne-beams meeting with the earth; and moist, by reason of the proper nature of the aire, and also by reason of the vapours exhaled out of the earth and water. This is the qualitie which commonly is attributed to this Region.

But I think that we may rather say it is variable; now hot,

hot, now cold, and sometimes temperate; differing according to the times and seasons of the yeare: In which regard *Du Bartas* writeth thus,

Warm-temper'd show'rs do wash it in the Spring;
And so in Autumne, but more varying:
In winter time 'tis wet, and cold, and chill:
In Summer season hot and soultry still;
For then the fields, scorched with flames, reflect
The sparkling rayes of thousand starres aspect.
The chief is Phœbus, *to whose arrows bright*
Our * Globie Grandam *serves for* But *and* White.

* The earth.

Neither is it altogether variable in regard of time, but also by reason of the diversitie of place; some climates being more hot and drie, some more cold and moist then others; which cometh to passe according to their distance from the Equinoctiall towards either of the Poles.

Thus for these two Regions. But now concerning the middle Region, it is alwayes cold: yet surely in its own nature it would be warmer then the Region which is here below, were it not cooled by a cold occasioned by the reflection of the Sunne-beams: For they, reflecting upon the earth, drive up above the beams of their reflection much cold from below, which being daily supplied is kept as a continuall prisoner between the heat above and the heat beneath.

The middle Region.

Or, if you will, take it thus, namely that it is cold, but not extremely cold; yet cold (I say) it is in respect of the two other Regions which are hotter then it. And this coldnesse happeneth partly through the causes before expressed; and partly by reason of the Aire in it which cannot follow the motion of the heavens, seeing it is hindred by the tops of the mountains. And hereupon it is that the Philosophers make this a rule, saying that * *the farrenesse from a circular motion gives quietnesse, coldnesse, & heavines; even as the nearnes gives motion, heat,*

* *Remotio à motu circulari dat quietem, frigiditatem, & gravitatem; sicut propinquitas dat motum, calorem, & levitatem.*

heat, and lightnesse: Which in this thing concerning the middle Region is found to be true, the Aire in it being cold, because it is hindred from following the circular motion of the heavens. But (as I said) it is not absolutely cold, but respectively: For if it were extreme cold, then the heat of the Sunne would never passe through it to this Region here below; neither would there be grasse, herbs, and such high trees as are upon the tops of the mountains.

But to proceed; 1. In the highest Region, and ofttimes above it, be generated Comets or Blazing starres, and such like fiery Meteors of divers sorts. 2. In the middle Region, Clouds, Thunder, Rain, Winds, Storms. &c. 3. In the lowest Region we have Dews, Mists, Hoar-frost, Ice and Frost. As also here is your *Ignis fatuus*, or foolish fire, with other Lights burning about graves, or such like fattie places, where there is store of clammie or fat oylie substance for their matter. These Lights are seen also in fields, and are driven by a gentle wind to & fro untill their matter be consumed.

Now these and every one of these, seeing they have their causes in nature, let us a little view them, both how and what they are: For they who send us to God, and his decree in nature, have indeed said what is the true cause, but not how it is by naturall means effected. For the manner of producing these things doth no lesse amplifie the power and providence of God, then the things themselves when they are produced.

Sect. 2. Parag. 2.

Of Meteors, first in generall, then how they are divided in particular.

AND these things of which we now speak, seen in any of the Regions, by a generall name are called *Meteors*

Meteors. And the matter of Meteors, as it is remote, is from the Elements; but as it is propinque or near, it consisteth of Exhalations.

And Exhalations are of two kinds. 1. There is *Fumus.* 2. *Vapor.*

Exhalations are of two kinds.

If it come from the earth or some sandy place it is *Fumus*, a Fume or a kind of Smoke.

If it come from the water or some watry place, it is *Vapor.* For this is a rule, that *A Fume hath a certain earthly nature in it, & yet is not earth; & a Vapour hath a certain watry nature in it, and yet it is not water.* Or, if you had rather take it thus; *Fumus est mediæ naturæ inter terram & ignem; Vapor verò inter aquam & aërem:* That is, *A Fume is of a middle nature between earth & fire; but a Vapour is of a middle nature between water and aire.*

And further, all vapours are warm and moist, and will easily be resolved into water; much like the breath that proceedeth out of a mans mouth, or out of a pot of water standing on the fire: and these are never drawn higher then the middle Region of the Aire; for there they are thickened and conglomerated by the cold into clouds.

The nature of vapours.

And why vapours are warm, being drawn from that which is cold, is not from any internall propertie of their own, but they receive this qualitie from the power and influence of the stars. For after that the matter is by thē attenuated or made thin, their beams cannot but warm it, although it proceed from that which is cold.

Why vapours are warm.

Again, all fumes are as smokes which be hot and dry; which because they be thin and lighter then vapours, they often passe the lowest and middle Regions of the Aire, being sometimes carried even beyond the highest Region it self.

The nature of fumes.

And thus we see how there are two kinds of Exhalations;

Th' one somewhat hot, but heavy, moist and thick:
The other light, drie, burning, pure and quick.

Moreover, these Exhalations being the matter of Meteors (as hath been said) are either from the Earth or Water. As for the Fire, and Aire, they are mixed with this matter, as with all other things, but not so abundantly that they may be said to be the materiall cause of any Meteor, although without them none can be effected. And thus much generally. But now more particularly.

Three sorts of Meteors.

And in coming to particulars, it may be found that these kind of Meteors, concerning which I speak, are of three sorts; either Fierie, Waterie or Aierie.

Fierie are of two sorts: either such as are in very deed fired; or else such as onely seem to burn, which are therefore called *Phasmata*: In which regard it may be said that these Fierie ones are either Flames or Apparitions.

The sorts of Fiery Meteors which burn in very deed.

And again in respect of their matter, if they be such as burn in very deed, then they be either more or lesse pure.

Their place where we see them is according to the abundance and scarcitie or rather qualitie of the matter whereof they consist: for if it be heavie and grosse, it cannot be carried high; but if it be not so grosse, but rather light and more full of heat, then it aspires and transcends, so much the higher by how much it is the lighter; sometimes above the highest Region of the Aire, even into the starry heaven it self; which is witnessed by our best modern Astronomers, who have observed many Comets above the Moon.

Furthermore, these Fierie impressions, according to the diverse disposing of their matter, are of severall fashions; and thereupon they have severall appellations, being called according unto the names of those things unto which they seem to be like.

As 1.

As 1. *Torches.*
2. *Burning Beams.*
3. *Round Pillars.*
4. *Pyramidall Pillars.*
5. *Burning Spears, Streams, or Darts.*
6. *Dancing or leaping Goats.*
7. *Flying Sparks.*
8. *Shooting Starres.*
9. *Flying Lances.*
10. *Fires, either scattered, or else as if all the aire burned.*
11. *Flying Dragons, or Fire-drakes.*
12. *Wandring Lights.*
13. And also *licking* or *cleaving fire,* sticking on the hairs of men or beasts.

These sorts are *ignita pura.*

Now all these kinds (of which I have mentioned thirteen) I take to be such fierie Meteors as are said to be pure and not mixt.

Then again have you those which are said to be mixt and lesse pure:

As 1. Comets of all sorts.
2. All kinds of lightening.
3. Unto which must be joyned thunder, as an adjunct.

These sorts are *ignita mixta.*

And now of these severally, before I mention any more of another kind, whether waterie or aierie.

Sect. 2. Parag. 3.

Of such fierie Meteors as are pure and not mixt.

Article 1. Of burning Torches.

1. FAx, which is a *Torch* or *Fire-brand,* or as a lighted candle, is an exhalation hot and drie, drawn beyond the middle Region of the aire, where being arrived it is set on fire (as are all exhalations that come there) partly by their own heat, and partly by the heat of that place: and because the matter of the exhalation is long and not broad, and being equally compact, and fired at the

the one end, it burneth like a torch or candle, untill the whole whereof it consisteth be consumed. And why it should burn at the one end rather then at the other, is found to be because it is long and standeth upright, having the most of its aspiring matter in the top; and in this station ascending up, it comes to passe, that when the upper end doth present it self to the heat of the upper Region, it is fired, and so consumeth by degrees, even as by degrees it ascendeth, or peepeth into that hot place.

Article 2. Of burning Beams.

2. *Trabs ardens, a burning Beam*, is an exhalation hot and drie, drawn beyond the middle Region of the aire; the matter of which exhalation being long and not very broad, makes it seem like a beam or logge: and because it is more grosse and heavie on the under part from the one end unto the other, and on the upper part hath much aspiring matter equally dispersed, it is transversly carried up, and so being fired it lieth at length, and standeth not upright.

Article 3. Of round burning Pillars.

3. *Round pillars* are of the same nature, unlesse perhaps their light and heavie matter is not so equally or in like order disposed, but rather heavier towards the one end then the other, which makes it be carried up or presented in perpendicular fashion; and also having the hottest and driest and most combustible matter driven to the superficies or out-side of it, by reason of a contrary qualitied substance within it, which makes it therefore be fired on all sides alike, and appear like a burning Pillar.

Article 4. Of Pyramidall burning Pillars.

4. *Pyramidall Pillars* are nothing differing from the other, unlesse that the exhalation have more earthly matter in it below, and not so much above: for when the lighter and thinner parts are ascended to the top, then the grosser, heavier, and thicker are left in the bottome: which makes it therefore of fashion great beneath and small above.

Article 5. Of Flashings, Streams, or Darts

5. *Burning Streams, Spears*, or *Darts*, is that Meteor which

which is called *Bolis* or *Jaculum*, and is an Exhalation hot and drie, meanly long; whose thick and thinner parts are equally mixt: and thereupon being fired in the highest region, it flameth on the thin or subtil part; which nevertheleſſe, becauſe the matter is well mixed, doth alſo ſend fire to the other parts, inſomuch that it ſeems to runne like a dart from the one unto the other.

Or, if you will, this Meteor (or one very like it) is thus generated, viz. when a great quantitie of hot and drie Exhalations (which indeed may fitly be called a drie cloud) is ſet on fire in the midſt, and becauſe the cloud is not ſo compact that it ſhould ſuddenly rend, as when thunder is cauſed, the fire breaks out at the edges of it, kindling the thin Exhalations which ſhoot out in great number like to fierie ſpears or darts, the ſtreaming or flaſhing being ſo much the whiter by how much the Exhalation is the thinner. Such like coruſcations as theſe we uſe to ſee many nights in the North and North-eaſt parts of the skie.

Article 6. Dancing Goats.

6. *Capræ ſaltantes*, or *dancing Goats*, are cauſed when an Exhalation hot and drie is ſo compact, that on the one ſide or other it hath ſome parts which appear as the appendices of it, or joyned to the main Exhalation by an other kind of Exhalation farre thinner then the main one, ſo that the fire running on the main part, and as it were outright, by the way it cannot but ſeem to skip unto thoſe parts on the ſides, inflaming them alſo; which, becauſe it is variouſly and nimbly performed, makes the flame ſeem to leap or dance, juſt as wanton goats uſe to do when they are dancing or playing.

Article 7. Flying Sparks.

7. *Scintillæ volantes*, or *flying Sparks*, are cauſed when the matter of the Exhalation is not onely thin, but in all parts thin alike, but not compacted of knit together: and not being cloſely joyned, but interrupted by ſmall ſpaces, thoſe parts which come up firſt into the higheſt Re-

gion are fired before the other that follow, and thereupon they flie abroad like sparks out of a chimney, even as when saw-dust or any such like matter is cast into the fire. This Meteor by some is called *Stipula ardens*, or *Burning stubble*.

Article 8. Of Shooting starres.

8. *Stellæ cadentes*, *Shooting* or *Falling starres*, are caused when an Exhalation hot and drie is gathered as it were on a round heap, but not throughly compacted, nor yet so apt to ascend as other Exhalations, which makes it therefore be beaten back again when it comes near the cold confines of the middle Region; and so, hovering aloft, by an* *Antiperistasis*, or repulsion by the contrary to it on every part, it is set on fire, and then sliding away, it appears as if a starre fell down or were thrown to the earth.

For shooting starres these some do fondly call;
As if those heavenly lamps from heaven could fall.

Moreover, sometimes it is generated after another manner, which is but in respect of the disposing of the matter; and then the Exhalation is more long then narrow, which being kindled at the one end burneth swiftly to the other, even like a piece of waxed thread being lighted in a fire or candle.

Again, some think that this Meteor is not so much set on fire, as directly under some starre or other which gives it a shining. But how this can be I cannot well perceive, seeing it shooteth obliquely as oft as directly downwards.

*Antiperistasis is a repulsion on every part, whereby either heat or cold is made more strong in it self by restraining the contrary.

Article 9. Flying Lances.

9. *Lancea ardens* or *volans*, *A burning* or *flying Lance*, is another fiery Meteor kindled in like sort that the former was, and hath this name because the matter of it is so disposed, that when it is fired it seems to be like a Lance.

Article 10 Of the seeming burning of the heavens.

10. *Illuminations*, or Fires scattered in the Aire, and appearing in the highest part of the lowest Region, are caused

caused when very dry and hot Exhalations are drawn up, and meeting with cold clouds are sent back again, which motions to and fro do set them on fire, and then their parts not being thick in equall proportion, but as it were unjoyned together, do seem as though Fires were scattered in the Aire. Thus one way. But sometimes the matter of this Exhalation is more nearly conjoyned, and then (if the Exhalation be large) it is as if the whole Aire were on fire, as appeared on the 15 day * of November in the yeare of our Lord God 1574; in which yeare about the last day of March the strange star in *Cassiopea's* chair vanished and disappeared.

* Stow in his Abridg. Ann. 1574.

11. *Draco volans*, or *a flying Dragon*, called by some a *Fire-drake*, is a fierie Exhalation whose matter is thick and as it were hard tempered together; or rather not so hard as conglutinously conjoyned: which lump, ascending to the Region of cold, is forcibly beaten down or back again: by the force of which motion it is set on fire; and not onely fired, but also bent and violently made crooked: For (as hath been said) the matter of it hangeth so conglutinously together, that the repulse divides it not, but by a strange encounter moulds it into such a fashion as (seen afarre off) looks much like * a Dragon. This is the opinion of the most. But some say that it is done into this fashion between two clouds of differing natures, the one hot, the other cold: and so perhaps it is sometimes made.

Article 11. Fire-drakes, or flying Dragons.

* Paracelsus is perswaded that it is a fierie living creature bred in the element of the Fire, even as flies in the Aire, fish in the Water and worms in the Earth: affirming that it is of a short life like the Salamander, &c. But if this be not ridiculous, then nothing is.

12. *Ignis fatuus*, or *foolish Fire* (so called, not that it hurteth, but feareth or scareth fools) is a fat and oily Exhalation hot and drie (as all Exhalations are which are apt to be fired) and also heavie in regard of the glutinous matter whereof it consisteth: in which regard the cold of the night beats it back again when it striveth to ascend, through which strife and tossing it is fired, (for in this encounter it suffereth an *Antiperistasis*) and being

Article 12. Foolish Fire, Jenny, or Will with a wisp.

being fired it goeth to and fro according to the motion of the Aire in the silent night by gentle gales, not going alwayes directly upon one point, unlesse the wind be more then such a gale as is commonly called *Aura*: And note that if the wind be any thing big or blowing, then this Meteor cannot appear at all, because the wind will disperse the matter of the Exhalation, not suffering it to be conjoyned.

Moreover, some think that it may be kindled of it self, although it be not so moved as before: and this is performed by the active moving of the heat which is within it, as is seen in an heap of moist hay which will set it self on fire.

These kinds of lights are often seen in Fennes and Moores, because there is alwayes great store of unctuous matter fit for such purposes; as also where bloudie battells have been fought; and in* church-yards or places of common buriall, because the carcases have both fatted and fitted the place for such kind of oyly Exhalations. Wherefore the much terrified, ignorant, and superstitious people may see their own errours in that they have deemed these lights to be walking spirits; or (as the silly ones amongst the Papists believe) they can be nothing else but the souls of such as go to Purgatorie, and the like. In all which they are much deluded: For souls departed * cannot appear again; There is no such thing of ordinarie course: *I shall go to him* (saith David) *but he shall not return to me.* And (saith Job) *He shall return no more to his house, neither shall his place know him any more.* Or (as it is in the Psalmist) *Before I go hence and be no more seen.* So that if they walk, sure it is invisible, for (saith the Scripture) They shall be no more seen. But what need I urge that? For we see that they cannot at all return, but are * *ignorant of all things done under the sunne*; & as it was with Divers and Lazarus, so it

*Taken therefore (but falsely) for the souls of the departed: as you may see if you look but a little further.

* 2. Sam. 12. 23.

Job 7. 10. Psal. 103. 15, 16. and Psal. 39. 15.

* Eccles 9. 5, 6.

it is with every other Wherefore we may well say thus,

1. *If after death souls can appear,*
Why then did Dives crave,
That one his brethren word might bear
What pains the damned have?
2. *Or if there be * another room*
Which is not Heav'n or Hell,
*How scap't the * begger from the doom*
Of Purgatories cell?
3. *What shall become of Christs dear * bloud,*
If after death there be
A way to make our own works good,
And place the soul in glee?

* Eccles. 9. 10. Hos. 13. 14. John 17. 24.

* Luke 16. 22. and chap. 23. 43.

* 1. John 1. 7, 9.

Quest. But, if these lights be not walking spirits, why is it that they lead men out of their way?

Answ. They are no spirits, and yet lead out of the way, because those who see them are amazed, and look so earnestly after them that they forget their way; and then being once out, they wander to and fro, not knowing whither, sometimes to waters, pits, and other dangerous places; whereupon the next day they will undoubtedly tell you strange tales (as one saith) how they were led up and down by a light, which (in their judgement) was nothing else but some devil or spirit in the likenesse of fire which fain would have hurt them. But of this enough: and know last of all, that if one be something near these lights, and the night calm, then going from them they will follow us, be cause there being no wind to hinder, we draw the Aire after us; or going towards them they go from us, because we by our motion drive the Aire before us.

Of Helena, Castor and Pollux.

Moreover, when the like matter chanceth to be fired in some such part of the Aire as is over the Sea, then these lights appear to marriners, and are called *Castor* and *Pollux*, if there be two at once; otherwise *Helena*, if

if there be but one: The reason of which names was this; *Helena* was the daughter of *Jupiter* & *Leda*, and by the heathens she was taken for a goddesse, but not for a goddesse of good fortune: for this *Helena* was the cause of *Troyes* destruction; as thus. She was stollen away by *Paris* the sonne of *Priamus* K. of the *Trojans*, stollen, I say, out of *Greece*; whereupon her two brothers *Castor* and *Pollux* sayl to seek her, but they were never heard of more, or seen after: which losse of these brethren made it be supposed that they were translated into the number of those gods who use to give good successe to mariners; for they were lost at sea; which is, as if they were translated from thence. Now then the Seamen having seen by often experience that one light was to them a signe of some tempest, and that two lights were a signe of fair weather, they called the one light *Helena*, and the two lights they called *Castor* and *Pollux*.

Quest. But why should it be, may some demand, that they should thus appearing shew either fair or foul weather? can any reason be shown for it?

Why two lights at once shew fair weather, and one light foul weather.

Answ. It is answered, that one flame alone may be a signe of tempest or foul weather, because, that as that matter which burneth is so compact into one that it cannot be dissolved into two; so in like manner the matter of tempest being exhaled, by the like cause is kept from being dissipated, and is so close together that before any long time it must needs work.

And again, when two lights appear, why then it should be fair, it is because there is not the like working in nature which was before; but rather the contrary: for as this Exhalation of the lights is divided; so the matter, which otherwise might be fit for tempest, is not thickened, but by the like cause is also divided, scattered, and easily dissolved; insomuch that it cannot work so as at other times, when there is a working to compact, and not to dissipate.

13. *Ignis*

13. *Ignis lambens* is a cleaving and licking fire or light; and is so called because it useth to cleave and stick to the hairs of men or beasts, not hurting them, but rather (as it were) gently licking them. These flames may be caused two wayes, as the learned write. *Article* 13 Licking Lights.

First, when clammie Exhalations are scattered abroad in the aire in small parts, and in the night are set on fire by an *Antiperistasis*; so that when any shall either ride or walk in such places as are apt to breed them, it is no wonder that they stick either on their horses; or on themselves.

Secondly, they may be caused another way, *viz.* when the bodies of men or beasts, being chafed, do send out a fat and clammie sweat; which (according to the working of nature in things of this kind) is kindled and appeareth like a flame. Virgil makes mention of such a fire as this, upon the head of *Iulus* the sonne *of Æneas*;

Ecce levis summo de vertice visus Iuli
Fundere lumen apex, tactúque innoxia molli
Lambere flamma comas, & circum tempora pasci.

Virg. Æneid. lib. 2. prope finem.

Behold, the lively crown
Of soft Iulus head
With light was circled round:
A flame his temples fed.
But toucht, not having hurt, nor feeling harm,
The licking fire his hairs would scarcely warm.

Livie also maketh mention of two others upon whom the like Meteor appeared: For *Servius Tullius*, when he was a child, even as he lay sleeping, had his hair on his head as if it were all on a fire. And upon the head of *Marius*, that worthy Romane, was the like appearance, even whilest he was making an oration to his souldiers. And I my self do also know one, who hath often protested to me, that as he lay in his bed one night, his head was all on a flame; which hurt him not, although it greatly

greatly ſcared his wife and him, as I have heard them both confeſſe. Moreover, others teſtifie how they have been ſcared in their beds by a kind of light ſticking to their coverings, like dew upon the nap of a frieze coat: which muſt needs be this *Ignis Lambens*, cauſed by ſome kind of clammie ſweat proceeding from among them. For, that a clammie ſweat will cauſe theſe things, is manifeſt in the nimble currying of a foggie horſe; viſible ſparks appearing and coming from him, if it be done in the dark. But of theſe kinds of fierie Meteors enough.

Sect. 2. Parag. 4.

Of ſuch fierie Meteors as are impurely mixt.

Article 1. Of Comets.

Why ſome fierie Meteors are leſſe pure then others.

NOw follow thoſe which are *Ignita mixta*, and leſſe pure; coming ſo to paſſe when the Exhalation, through the admixtion of ſome vapour, is more ſlimie, groſſe, and impure: For thoſe Meteors already deſcribed were merely Fumes without the admixture of Vapours; unleſſe it might be ſome little in one of a glutinous nature or compoſition. Now theſe *Ignita mixta* are uſually divided into two ſorts: for they are either ſuch as continue long; or elſe ſuch as are but for a little while.

Thoſe that continue long, are Comets or blazing ſtarres.

What Comets are.

And a Comet is a fierie Meteor, whoſe matter is an Exhalation hot and drie, fat and clammie, drawn by vertue of the heavenly bodies into the higheſt part of the aire (and ſometimes into the ſtarrie Region) where it is cloſely conglutinated into a greet lump, by reaſon of ſupply that it hath from below, ſo long as there is a working to exhale it: and being thus compacted and exhaled, it is ſet on fire in convenient time by the exceſſive heat of the place where it reſteth. Sometimes it continues burning long;

long; sometimes but a little while: seven dayes is the least time; whereas some have been seen * six moneths: all which cometh to passe by reason, either of the paucitie, or plentie of the matter whereof it consisteth. That last Comet which was seen of us, viz. *Anno Domini* 1618, was perspicuous by the space of one moneth; namely from the 18 day of November untill the 16 day of December next following; and was farre above the highest Region of the aire, overlooking even the moon her self, as *Longomontanus* proveth in a book of his, where he treateth of new starres, and such appearances as have been seen in the heavens, since the yeare of our Lord God 1572.

* Plinie maketh their shortest time to be seven dayes, and their longest 80 dayes, *lib. 2. cap.* 25. but we find it otherwise: And therefore there is a fault, 80 being put for 180, which might come to passe by the losse of a C.

But in a Comet two things especially are considerable: the one the colour, the other the fashion: both which arise out of the diverse disposing of the matter.

Three principall colours in a Comet.

Their colours are principally three. 1. If the matter be thin, then the colour is white. 2. If meanly thick, then the colour is ruddie, looking like fire. 3. If very thick, then their colour is like the burning of brimstone, or of a blew appearance.

Yet know that they are not alwayes exactly of these three colours without any difference, but as near them as the disposing of their matter will suffer: as in stead of white we sometimes have them of a yellowish colour; in stead of blew, of a watchet or greenish colour, and the like.

Two chief fashions in a Comet.

Concerning their fashions (if we stand upon a curious examination of them) they may be manifold: and yet, as *Aristotle* accounteth, they are principally but two, all their other shapes being dependant on these two. For first either they seem round, having beams round about them; which cometh to passe when the matter is thin on the edges, and thick every where else: or secondly, they seem as it were with a beard or tail; which cometh to passe

passe when it is but meanly thick towards some one side or other, and rather long then round. But some would have these two fashions to be three, because the tail sometimes hangs downward as well as sidelong: and so there is by this means *stella crinita*, *stella caudata*, and *stella barbata*; concerning which I am not much solicitous.

The strange effects of Comets.

That therefore which in these things I do much more wonder at, is the strange and admired multitude of effects which are produced by them; as not onely change of aire but change of heirs also, proceeding from the disturbance of states, translation of kingdomes, bloudy warres, and death of Potentates. Histories have carefully recorded these things, and left them to the consideration of after-times.

First therefore let it be observed, that when the kingdome of the Macedonians came to an end, in the last yeare of *Perseus*, which was about the yeare 584 or 585 of the building of Rome, a * Comet appeared, as if it came to point out the last period of that kingdome.

* *Carion, ex Seneca, lib. 2.*

Secondly, when the Emperour *Jovian* attained to the Empire, succeeding the Apostate *Julian*, under whom the Church suffered much persecution; when (I say) the said *Jovian* was Emperour, and that under him both Church and Commonwealth were like to have had a * flourishing time (had he not been taken away by sudden death) then also * appeared a Comet, shewing that further trouble was yet to be expected.

* *Socrat. lib. 4. cap. 22.*
* *Carion, lib. 3.*

Thirdly also, when a certain captain of the Goths, an Arian, named *Cajan*, had raised sedition against the Emperour *Arcadius*, God shewed by manifest wonders that both *Arcadius* and his citie should be well protected: but before this tumult (saith * *Carion*) a strange Comet was seen, great and terrible, casting flames down to the very earth; the like whereunto no man had ever seen before.

* *Lib. 3. pag. 294.*

4. And

4. And again, other Authours make mention of a strange Comet seen in the yeare of Christ 410, being like unto a two-edged sword, which protended many mischiefs. For Rome was taken about the same time by *Alaricus* King of the Goths. Sundry calamities happened both in the East and West; & so great slaughters of men were about those dayes, as no age ever afforded the like. All *Europe* was in a manner undone; no small part of *Asia* was affrighted; and *Africa* also was not void of those evils. Warre, Famine, Drought, and Pestilence, all of them strove (as it were) to trouble the whole world.

5. Also in these years, viz. 1400, 1401, * 1402, 1403. Comets appeared, and great calamities followed; sundry and unheard-of diseases were felt, rivers dried up, and plagues were increased. *Tamerlain*, K. of the Scythians and Parthians, with an innumerable host invadeth *Asia*, calling himself the WRATH OF GOD, and DESOLATION OF THE EARTH; as did *Attilas*, of whom it is written, that he named himself THE SCOURGE OF GOD.

* Of this Comet you may reade in *Carion lib. 5. pag.* 854.

6. Also in the yeare 1529 appeared * foure Comets: and in the * yeare 1530, 1531, 1532, and 1533, were seen in each yeare one: (* *Lanquet* saith that there were three within the space of two years) upon which, these and the like changes and calamities followed; (viz.) A great sweating sicknesse in England, which took away whole Myriads of people. The * Turk, in the quarrell of *John Uvavoyda*, who laid claim to the crown of *Hungary*, entred the said kingdome with two hundred and fiftie thousand fighting souldiers; committing against the inhabitants thereof most harsh & unspeakable murders, rapes, villanies, and cruelties. A great famine and dearth was also in *Venice* and the countrey thereabout, which swept away many for lack of sustenance. The sweating sicknesse

* *Alst. Chron. cometarum.*
* *Goclen. Phys. Lanquet. Chron. & in contin. Chron. Euseb.*
* So also a certain Germane in the continuation of Euseb. Chron.
* Buchol. in his chron.

sicknes* also vexed *Brabant*, & a great part of *Germanie*, and especially the citie *Antwerp*, where it consumed five hundred persons in the space of three dayes. Great warres concerning the Dukedome of *Millain* between the Emperour *Charles* the fifth, and *Francis* the French King. All *Lusitania* or *Portugall* was struck with an Earth-quake; insomuch that at *Ulissippo* or *Lisbon*, a * thousand & fiftie houses were thrown down, & 600 so shaken that they were ready to fall, which made the people forsake the citie and runne into the fields: and as for their churches, they lay upon the ground like heaps of stones. Upon this followed a great pestilence in those parts. But a little before, viz. in the yeare 1530, was a great deluge in *Brabant*, *Holland*, *Zeland*, and the sea-coasts of *Flanders*; as also an overflowing of the river *Tyber* at Rome, occasioned by unseasonable tempests of wind. Upon the neck of which troubles the Turk comes again into *Hungarie* & *Austria*; but he was beaten back, and a great company of his men slain and taken. Unto which may be added how the sect of the Anabaptists not long after brought new tumults into *Germanie*.

7. And for that last Comet, in the yeare 1618, saith a Germane writer, *Præsagium ipsius jam eheu est in manibus nostris*; meaning that they felt by dolefull experience the * sad events which followed after it.

Wherefore seeing these and the like accidents have been attendant upon the appearing of Comets, it may well be said that although they have their causes in nature, yet *Nunquam futilibus excandunt ignibus æther*; The skie never burnt with such fires in vain. For (as one saith) *Loquitur cum hominibus Deus, non modò linguâ humanâ, per Prophetas, Apostolos, & Pastores; sed nonnunquam etiam ipsis Elementis in formas & imagines diversas compositis*: That is, *God speaketh with men, not onely with the tongues of men, by Prophets,*

* *Idem. vid.*

*I 1 Lanq. Chron it is 1400. *Vide Ann. Dom.* 1531.

* *Bellum Bohemicum & Germanicum oritur, quod hodiéque affligit patriam nostram Germaniam. Alsted. Chron. mirab. Dei. Fuit etiam antecessor mortis Matthiæ Imperatoris.*

phets, Apostles, and Teachers; but sometimes also by the very Elements composed or wrought into divers forms and shapes; there being a Theologicall end of sending Comets, as also a Naturall and Politicall end.

But first (before I come to that) I think it not amisse to speak something concerning these their events & accidents; namely whether it can be shewed why they should be wrought either so or so.

Why warres, deaths, famines and the like, are the effects of Comets.

To which it is answered, that in some sort we may give reasons for this, and shew the causes of their significations. For being Comets they consist of many hot and drie Exhalations: And hot and drie Exhalations do not onely stirre up heat, drie and parch the aire, which may cause drought (especially when much of the earths fatnesse is drawn away with the Exhalation) and drought bring barrennesse: but also the bodies of living creatures upon the distemper of the aire are mainly hurt, suffering detriment in the consumption of their radicall moisture, & suffocation, through the poysonous breathings which the bellows of the bodie suck in, and receive: insomuch that there cannot but be sicknesses, plagues, and much mortalitie.

Besides which, that they should usher in warres, seditions, changes of kingdomes, and the like, may also proceed from the same cause: For when the Aire is distemperately heated, then it is very apt so to disorder and dry up the bloud in humane bodies, that thereby great store of red and adust choler may be purchased; and this stirreth up to anger with the thought of many furious and violent actions; and so by consequent to warre: and from warre cometh victorie, from victorie proceedeth change of commonwealths, and translations of kingdomes, with change of Laws and Religion: for, *Novus Rex, nova Lex*; *New Lords, new Laws*. Unto which also may be added, that because great personages live more

delicately then other men, and feed more daintily, having as many new fashions in their diets as in their clothes, for their boards as for their backs, that their bodies therefore are more subject to infection, and will take the poyson of an intemperate aire before more temperate livers; whereupon necessity inforceth that they die sooner in such a calamitie then other people, as he once witnessed that said, *Plures pereunt gulâ quàm gladio.*

Besides, the death of great ones is more remarkable then when inferiour persons die, so that if but some of them be taken away in common calamities, it is as if they were onely aimed at; because they are obvious to everie ones eye, as cities standing upon hills, which cannot be hid.

Our bodies follow the temper of the aire: and our minds do somewhat sympathize with the bodie.

And now that our bodies should follow the temperature of the Aire, is nothing doubted, seeing every lame, aking, or bruised joynt doth witnesse it even to the very ignorant: But that our minds and manners should follow the temperature of the bodie, is more strange and wonderfull. Yet true it is that by the mediation of humours and spirits, as also through ill-disposed organs, the mind also suffereth. For the bodie is *Domicilium animæ*, the souls house, abode and stay: so that as a Torch (saith * one) gives a better light, and a sweeter smell, according to the matter it is made of; in like manner doth our Soul perform all her actions, better or worse, as her organs are disposed: or as wine savours of the cask where it is kept, so the soul receives a tincture from the body, through which it works. For the Understanding is so tied to, and captivated by his inferiour senses, that without their help he cannot exercise his functions; and the Will being weakened so as she is, hath but a small power to restrain those outward parts, but suffers her self to be overruled by them: of which I shall have occasion to speak

* Burton, in his Melancholy.

speak more in the * fourth dayes work, untill when I leave it; in the mean time adding, that Comets do not alwayes, when they bring sicknesses, corrupt the aire through immoderate heat and drinesse, but sometimes also through immoderate heat and moisture; as also by immoderate winds, which may bring the poyson of the Exhalation whereof the Comet consisted, unto some such place as lieth obvious unto it, and the like. Yea and upon the raising of winds come often showers and rains, or else overflowings of banks upon high tides and other loftie waters, which are forced over upon the violence of the winds.

* Chap. 7. sect. 3. parag. 2. art. 1.

Astrologers say that Comets do most hurt either unto those places to which they are verticall, or unto those countreys which are subject to the signe wherein they are (for they maintain that such and such countreys are subject to such and such signes:) but omitting part of that, they also tell us (which stands with good reason) that in earthie drie signes they produce barrennesse by reason of drought; in waterish signes barrennesse also by reason of too much wet; in aierie signes extraordinary wind; in signes of a fierie triplicitie, extraordinary heat, warres, fires, drought, and the like; and in all of these (seeing their operation is extraordinary) some one perilous and infectious sicknesse or other.

How to guesse at the signification of Comets.

Besides, they also * tell us that if a Comet be in fashion like unto a sword, it then signifieth warres and destruction of cities, &c. If it be *stella crinita*, or blazing round about, and of divers colours; then it signifieth wind, seditions, heresies, and the like: but if it be blackish, with a short tail, and no hairs; then it is a signe of barrennesse together with long and continued warres.

* *Origanus de effectibus, pag. 526. ex Cardano.*

But know now that although these and the like accidents be produced by Comets; yet if Comets should not be, the case would be farre worse for mankind, and more

readily would eager death seize upon him. For if that which is the matter of Comets were not taken into one place, and drawn, so as it is, up into the aire; it would kill us by being dispersed about our dwellings: such being the nature of their poisonous fumes, as they by experience know who have seen the danger of damps whilest they played the part of Pioners under ground.

The severall ends of Comets.

Wherefore let me adde, that the end for which Comets are, is threefold: for either they appear for a Politicall end; for a Theologicall end; or for a Naturall end.

Politicall.

In respect of a Politicall end, they are so to be taken for the Heralds of future calamities, that men being forewarned may be forearmed, and provided either to shun the threatned disaster, or else to endure with patience the common and inevitable misery.

Theologicall.

In respect of a Theologicall end, they are either a signe of calamities, or else the efficient cause of calamities. If they be a signe, then their end is this, *viz.* that they may be monitours, instigatours, and admonishers to repentance; and to desire and expect either the turning away, or mitigation of those publick punishments. But if they be the efficient causes of miserie, then their Theologicall end is, that they are sent as the instruments of punishing some such enormous malice and contumacie of mankind as would not be kept under or restrained by any humane law or discipline.

Naturall.

And lastly in respect of a Naturall end, it is that those pestiferous winds, spirits, or breathings, which are gathered from metallique liquours and the like in the earth, should be taken up farre into the aire from the common seat of men, that thereby we may partake the lesse of their malice: for being burnt out and consumed there, they can lesse hurt us, then if they were below. If they should remain in the earth, they then (as they often do) would rend and shake it: or should they remain below

below in the near neighbouring aire, they would poison us * sooner then above; because if the aire be infected when they are on high and a great way from us, much more would it be infected should they be below and round about us.

But of Comets I have said enough. And now methinks I am led from them to a consideration of such appearances as are called New starres; such as were in the yea rs * 1572, 1596, 1600, 1602, 1604, and 1612.

* Witnesse the great plague which was in Portugall Ann. Dom. 1531, occasioned by vapours which through a breach of ground in an earthquake issued forth & poisoned the aire. Lanq. Chron.

* After which were these appearances, if not new starres, yet most of them supralunary Comets: as in the yeare 1577. which Sybilla Babylonica prophecied of (as may be seen in Tycho) shewing that it should arise about foure years after the vanishing of Cossiopeas starre; which was true inclusively: and in the years 1580, 1585, 1590, 1593; and in the yeare 1596 (but this was a New star) and in the years 1607, and 1618.

Artic. 2.

Of new starres, and especially of that wich was in the Constellation of Cassiopea, Anno Dom. 1572.

NOw here I must confesse that I know not what to write: for how they are generated, or what they signifie, is a matter of most intricate question.

Noble *Tycho*, that Phenix of Astronomie, and after him *Longomontanus*, with certain others, have been perswaded that they were more then Comets, and generated farre otherwise, or of other matter then fierie Meteors are; being first set awork so to think by the sight of that strange and admirable New starre which was seen in the constellation of *Cassiopea*; seen from the ninth of November in the yeare 1572, untill the last of March in the yeare 1574.

Which starre was indeed truly admirable, and (as I may say) attended with a sad event; I mean that cunningly plotted Massacre of Protestants in *France*, at the solemnization of a marriage between *Henry* of *Navarre* cheif of the Protestants partie; and lady *Margaret*, sister to the French King *Charles* the ninth, then reigning, and cheif authour of the foresaid Massacre: at which wedding there was not so much wine drunk as bloud shed; thirtie thousand Protestants and upwards, of the best and most potent, being sent through this Red sea to the land of Canaan.

Or if this New ſtarre were not attended with that particular accident, becauſe the * Maſſacre was in Auguſt, and the ſtarre appeared not untill * two moneths after; yet we may hope, that riſing after ſuch a butcherie, and ſo ſoon after it as it did, that therefore it came to animate diſtreſſed Chriſtians, ſhining at the firſt with a cheerfull countenance, but at the laſt turning into a martiall and bloudie hue: as if in ſo doing, he which ſent it would have the world take notice that his righteous ſervants ſhould ſee truths enemies (be they where or whom they will) confounded at laſt by martiall diſcipline; and that thoſe who had made havock of others ſhould be troden down at laſt themſelves, although for a time they fairly bore it out.

* *Viz.* on Bartholomew day. Calvif.
* *Viz.* on the ninth of November.

But by what inſtruments the execution of theſe projects ſhould be performed, we cannot tell. Yet this I verily think may be ſaid, that thoſe late, bleſſed, and admired proceedings of the proſperous and ſucceſſefull GUSTAVUS ADOLPHUS King of *Sweden*, whoſe manifold and ſudden conqueſts made him a ſpectacle to the aſtoniſhed world, that thoſe (I ſay) do point us to him above all men, as being the man appointed to ſhew the firſt effects of that ſtrange ſtarre; and that it was to have an operation farre ſurpaſſing the ſaddeſt conſequents of former threatning Comets.

To which purpoſe I find, that learned *Tycho* hath added a kind of propheticall concluſion to that book of his which he wrote concerning this New ſtarre; wherein he declareth (according to his modeſt and harmleſie rules of art, proceeding in them not like a doting heatheniſh ſtarre-gazer) that the effects were to be declared by * ſucceeding events: which as they ſhall not begin (ſaith he) untill ſome years after the apparition, ſo they ſhall continue for a long time afterward. The beginning of the effect, or ſome part of it, was to fall out after

* And therefore he could not then name any one in particular.

after the third septenarie of years from the first appearing of the starre (as he also writeth which was after one and twentie years ; about which time I plainly find that the foresaid * King was born : For the time of his birth falleth into the yeare 1594, which is the very next yeare after the one and twentieth yeare from the starres first rising; so that the yeare of his conception falleth into the very one and twentieth yeare it self: or, if you account inclusively from the yeare of the starres vanishing, unto the yeare of the King of *Swedens* appearing, or entrance into the world, then not his conception, but his birth, falleth into the said one and twentieth yeare. Which thing is also somewhat agreeable to *Tycho* his own meaning, where he telleth us (although he nameth no particular person) that those noble Heroes which shall happen to be born at the first rising of this starre, are ordained to be the authours and atchievers of such great mutations as should then be, when the men ordained for them came to be fit, and of ripe age to work them. Thus he ; the difference between us being, that he applyeth it to the birth of such eminent men as were to be born when the starre first appeared ; and I to that time when (according to his conjectures) the operation of it first began : which , albeit he casteth it into the yeare 1592, must not be untill the yeare after, being the one and twentieth yeare from the starres first rising, and the very yeare of the King of *Swedens* conception : For he was born on the last day of November in the yeare 1594; being also (as hath been said, both terms included) the very one and twentieth yeare from the starres first vanishing.

* The King of *Sweden* born at such time as the starre began its operation.

Neither doth the time of his birth fall out thus fitly, but the place likewise, which was to be the ominousnest concerning the occasion, or bringing forth of one, for the authour or beginning of the intended alterations, is

The place pointed at by the heavens hath 62 degrees of Nortl latitude.

pointed at by the heavens to be ſuch a place as hath for its latitude about 62 degrees from the Equator northwards; for in that parallel the ſtarre moved day by day, and was verticall once every day to *Norvegia*, *Swedia*, *Finlandia*, *Livonia*, *Moſcovie*, and *Tartarie*, with all ſuch places as lie under the ſame parallel.

Now though the ſtarre in his daily motion was in this manner verticall to more places ſucceſſively then to the King of *Swedens* dominions; yet at the time of the next new Moon (which *Tycho* maketh a rule concerning the place, from whence either the occaſion, or authours of the great changes ſhould proceed) it was juſt over the Meridian of *Finland*, being verticall to that countrey: And who but the foreſaid GUSTAVUS ADOLPHUS King of *Sweden* hath the countrey of *Finland* as a part of his dominions? For he is not onely King of the *Sweds*, *Goths*, and *Vandals*; but alſo great Prince of *Finland*.

Tycho, I confeſſe, doth not directly name the countrey of *Finland*, but choſe rather to expreſſe the place by calling it *Moſcovia*, or *Ruſſia*, bordering upon *Finland*: wherein I find (according to the obſervations of a learned and great Divine) that he was ſomething miſtaken. For in a book lately ſet forth, and intituled *The new ſtarre of the North*, the ſaid Authour, having made ſome obſervations from *Tycho's* writings concerning that ſtarre, and applied them unto theſe times, doth manifeſtly prove that it ought rather to be *Finland* bordering upon *Ruſſia*, then *Ruſſia* or *Moſcovia* upon *Finland*: withall, amongſt other reaſons which ſhould make *Tycho* chooſe that place, rendring this for one, that perhaps he was loth to bring the prediction too near home, ſeeing there often happened divers diſtaſtes and quarrels between his Sovereigne the King of *Denmark*, and the neighbouring King of *Sweden*: Which, upon this

this ground may the better be granted, *viz.* because *Tycho* was once fain to hide his head for denoting in too direct terms a prediction too near his own home, although it afterwards proved true. But I referre you to the book, and proceed.

And novv vve shall see, that not onely the time of his birth and place pointed at by the heavens, but the chief time also vvhen the starres influence should be most perceived, doth point at him. For *Tycho* vvitnesseth that about the yeare 1632 (if not also a fevv years after) the chiefest force and influence of this strange starre should shevv it self, the greatest significations depending upon the Trigonall revolution and transmutation of the Planets: vvhich force and influence, vvhy he referreth it to those times, I leave to the admired perfection of his art, vvherein he vvas a kind of Phenix, and scarce hath left his parallel. For vvill you heare King JAMES of blessed memorie, and our late learned Sovereigne speak for him? his commendations then vvill surely be no lesse. For in certain verses (as being able to judge both of him and his treatises) he approves his labours, and commends his skill as superexcellent. The like also he doth in an Epistle vvhich he vvrote unto him: some of vvhich verses, as I find them Englished, are to this effect,

Great Tycho's *labours also do fore-show*
Events, which shall befall on earth below;
And by disasterous or fair Aspects,
What destinies on kingdomes God directs.

Novv then, if the chief effects shall demonstrate themselves about the yeare 1632, questionlesse the King of *Sweden* must not be baulked in his late proceedings, but taken as a prime man upon vvhom the beams of this Nevv star hath shined: for his great famous victories, & never e-enough admired conquests in *Germanie* (that *Sedes belli*) atchieved in so short a time; have vvitnessed as much.

Nay,

Nay, vvhen I heare himself speak to his souldiers, and those citizens vvhere he conquered, I am confirmed. For speaking to the men of *Norimberg*, thus he saith; *Truly God hath marvelously preserved you, as he hath also pleased to call me to this work. For I had rather thought that the last day of judgement should come, then that I should come into* Norimberg, *and (as you said y our selves) leave so farre behind me mine own dominions, good subjects, and what else there is loving and dear unto me; and to bring along with me so many brave worthies, to expose their lives (as I do mine own) for the restitution, safetie, and preservation of the common Evangelicall cause and liberty of* Germany. And again, to those of his Court before *Ingolstadt*, amongst other things, he addeth this; *I know* (saith he) *that the good successe, which it hath pleased God to afford me in my enterprises, hath made some to be envious, who labour to perswade the simple that I endeavour nothing more then mine own gain, and the robbing and spoiling of others. But I call to witnesse in this case the Princes who were thus spoiled, which I have again established in their own right and estates; as also the creditours of whom I have borrowed such extraordinary summes of money, both at* Frankford *and elswhere, and the dangers which I do daily expose my self unto: I call all these to witnesse, whether I have left mine own kingdome, & the dearest I have in the world, to any other end, and with other intention, but onely to destroy the tyranny of the house of* Austria, *and to obtain a profound and settled peace unto all.*

These words of his shew nothing lesse then that he vvas extraordinarily set on vvork to undergo such fortunes as the eyes of all the vvorld have bravely seen him struggle vvith: & God knovvs vvho shall end that vvhich his coming into *Germanie* hath begun. It vvas his ovvn saying, that if he himself should not survive so long as

as to bring to passe so great a vvork, that then in his stead some other might succeed and go on, untill a full point and period vvere put unto the vvarre. For upon the occasion of his deliverance from a cannon shot, he utters these vvords; saying, that he vvas not onely mortall, but subject also unto the very same accidents that the poorest and meanest souldier is subject unto. *It is a generall law,* (*saith he) *from which my crown, my birth, my victories, are not able to rescue & exempt me. There remaineth nothing else therefore, but that I must resigne my self to the providence of the Almighty, who (if it please him to call me out of this world) will nevertheless not abandon and leave a cause so just as that which I have undertaken; but will doubtlesse raise up some other, more wise, more courageous and valiant then my self, who shall put a period to this warre.*

* In a speech to his court at Ingolstadt.

And again, it vvas but three dayes before his death, that at *Naumbourg* he uttered these vvords; *Our affairs* (*saith he) *answer our desires; but I doubt God will punish me for the folly of the people, who attribute too much unto me, & esteem me as it were their God: & therefore he will make them shortly know & see I am but a man. He be my witnesse, it is a thing distastfull unto me: And what ever befall me, I shall receive it as proceeding from his divine will. Onely in this I rest fully satisfied, that he will not leave this great enterprise of mine imperfect.*

* Taken out of the relation of his last battel, pag. 20. translated out of French into English.

A memento for after-times.

Great King of Hearts, in arms transcending fame!
Eternall praise shall blazon forth thy name.
Soul of thy friends thou wert;
But terrour scourge of foes.
Canst thou then die, though death
Thine eyes in spight may close?
No no: For times unborn shall yet repeat
What deeds were done by thee a King so great.
And this doth also raise thy just renown.
That in thy fall thine enemies fell down.

Thine

Thine was that day : thy men undaunted fought
Untill their foes the field were driven out :
For as it were from forth their Kings last bloud
The palm and bay sprung up, and conqu'ring stood.
Great deeds thou diddest soon : hot Mars his sphere
In Germanie thee mov'd a double yeare :
From whence at last above the spheres he caught thee,
And to a place of peace eternall brought thee :
Where thou shalt rest, how e're the rest proceed
With those fierce wars which heav'n hath thus decreed

But let me novv return again to this Nevv starre, and shew you that in the dayes of *Hipparchus*,* who lived tovvards the end of the Grecian Monarchy, there appeared one much like it : and so * *Plinie* telleth us. But since that time vve reade of no other untill this in the yeare 1572, excepting that vvhich appeared at our Saviours birth, vvhich indeed vvas no such starre: for it had three properties* never seen in any else ; moving first from the North to the South; secondly, it vvas seated in the lovvest Region of the aire ; thirdly, it vvas nothing hindred by the light of the sunne, &c. Yet in later times, followving the said yeare 1572, some smaller ones have been : as in the yeare 1596; this vvas seated in the *Whale*. And in the yeare 1600, or thereabouts, another vvas seen in the constellation of *Cygnus*. *Kepler* makes mention of one in the yeare 1602, in the constellation of *Pisces*; soon after vvhich upon the death of Q. *Elizabeth*, and coming in of K. *James*, vvas that great plague at London. Some say that *Andromeda's* girdle & the constellation of *Antoninus* afforded each of them one, in the yeare 1612. But the yeare 1604 must not be forgotten ; for in the* 16 degree and 40 minute of Sagitarius tovvard the Southvvest a remarkable one appeared, having 2 degrees and 15 minutes of North latitude, & vvas seated in the constellation of *Ophiucus* : this at the first shined as bright as Venus;

* He flourished 135 years before Christs birth. *Helvic. Chronol. ia Lib. 2.*

* See more in Aquinas summes.

* Some say the 17 degree. *Calvis. Chron.*

Venus; and in the very next yeare that damnable povvder plot of the Papists vvas discovered.

But novv, though these and more vvere reckoned up, yet that in *Cassiopea* vvould be the chief, the elder brother, and captain of them all; because both in height, bignesse, and lustre, they vvere lesse remarkable.

Tycho, upon the sight of this Nevv starre, laboureth to prove that the heavens, and not the earth, afford matter to such as these are; thinking that it differeth not from the matter of other starres, unlesse in this, *viz.* that it is not exalted to such a perfection and solid composition of the parts as in the first continuing and created starres; the main and principall reason being taken from the magnitude of them, together vvith their extraordinary height. As for example; * *Tycho* affirmeth concerning that Nevv starre in *Cassiopea* (being as it vvere the elder brother of all the other after it) that it vvas 300 times * bigger then the earth. Which being so, it is vvith small probabilitie affirmed that it should have matter from that vvhich is so much lesse then it: and indeed a thing impossible. The heavens are large enough to afford matter, although the earth be not: and no part of the heaven can be imagined to be more fit for such a purpose then the *via lactea*, or *milkie way*; for that place alvvayes shevvs it self, even to the eye, so as if there vvere much indigested matter in it, reserved onely to vvork such vvonders.

A consideration of this New starres matter.

* *Lib de nova stella.*

* Yet the same matter had it been crushed together, or as solidly composed as the earth, would have been as nothing in respect of the earth.

Yet nevertheless I suppose it may be also granted, that an earthly Exhalation may have recourse sometimes unto the battlements of heaven, and in some sort and in part concurre tovvards the composition of these Nevv starres (as they are called) and of such Comets as have been above the Moon. What should vve think of that last, in the yeare 1618? it * vvas (as I have already said) amongst the vvandring stars themselves; and yet it vvas no

* *Longomont. de novis coeli Phaenom.*

no other then such a starre as we call a Comet or a Blazing starre. Now then, if this had matter from the earth, and spent it amongst the Planets, rather then below the Moon; why might not those which we call New starres obtain the like freedome to have the like matter ascend a little higher? What should hinder this conjecture I do not easily see: for questionlesse the same power remains still in the starres to exhale the matter as well after it comes into the highest Region of the aire, as before it came there; neither need we then imagine an abatement of their exhaling virtue.

Object. 1. But perhaps it may be thought that the nature of the place above the Moon doth sufficiently denie the ascent of any terrene Exhalation so high; there being too great a difference between the one and the other; between the matter ascending, and the matter of that place whither it ascendeth.

Answ. To which I may partly answer as before, in the 4. Chapter and 3. Section, that seeing the out-spread Firmament in the creation was taken from that masse of matter which lay here below, and separated from it rather then created of any newer matter, that therefore (I say) there cannot be so great a difference as to bring in such an antipathie as will not at all suffer any terrene Exhalation to scale those *flammantia mœnia mundi*, or battlements of heaven; but rather, that without reluctancie, or any great striving, the one may admit of the other, and entertain it as a guest near of kin unto it self, or unto the nature of that place where the continuing starres have ever had their residence.

From the earth to the highest Firmament is nothing but aire.

For, if I urge it further, it may well be proved even by opticall demonstration, that the great vast space from the earth, as high as the fixed starres themselves, is not of a diverse nature from the Aire; for if it were, then there would be a multitude of Mediums between the sight and the

the thing visible: but there is no multitude of Mediums: For where there is a multitude of Mediums, there the beams which come to the sight from the thing visible would beget a multiplicitie of refraction in the said raies or beams; but it is manifest that there is onely one refraction found in the beams of the starres, and that but onely when they are near to the edge of the Horizon, at which time the ascending vapours are between our sight and them: And therefore there is but one kind of Medium by which the starres offer themselves to our sight: And being but one Medium, there cannot be such diversitie of natures between the heavens and things compounded of the elements. Whereupon it may be concluded, that an Exhalation may ascend into the territories of the starrie heaven, and so by consequent have a mutuall concurrence with such matter as the heavens do naturally afford towards the generating of supralunary Comets, or new-admired Starres.

Indeed I must confesse that were I of *Pythagoras* his opinion, I then would cry out with *Auditus* in the *Comedie——*Heark, heark, list, list now, &c.* What, are you deaf, do you not perceive the wondrous sound and the celestiall musick the heavenly orbs do make with their continuall motion? Or I would imagine firm spheres or solid orbs, and so set an undoubted stoppage, and hinder the passage of any Meteor above the Moon: But seeing that tenet is made the fit subject of laughter, I therefore passe it over.

* Called *Lingua.*

Object. 2. But may not the Element of Fire stand in the way, and so consume such matter as ascendeth, before it come beyond the Moon?

Answ. To which it is answered, that the chiefest cause why men have been perswaded to think that Fire is generated immediately under * the spheres, and that within the concave, of the Moons orb, the said Fire, as it is there

* *In concavo Lunæ generatur igne.*

there generated, hath there its place of residence, is for no other reason but because of an imagined attrition of the spheres and orbs: Which seeing they are taken away, and that all is filled with Aire, the Elementarie fire is not hindred from ascending, but may have a more loftie station. For questionlesse, this kind of fire, as it is not visible to the sight, so neither may it be thought any other thing then the more subtill, light, and hot part of the Aire; in which regard it must needs be both in and of that part, which is nearest to the highest heavens: For both the motion of the heavens is there most swift; and also, there is the greatest neighbourhood to that infinite number of starres fixed in the heavens.

What place the Element of Fire possesseth

An earthly Exhalation may therefore climbe above the Moon, and yet not runne through a fiery purgatory, or be consumed by the way.

Mr. *Lydiat* our countreyman, his opinion is, that if we consider of this Element, not as it is absolutely pure, then the greatest part of it is in the starres (of which see more in the fourth dayes work) and some also is under ground, as being there a great cause of generating metals; occasioning the burning and breaking out of sundry sulfurous hills, and the like.

But of this enough. And in the consideration of it I have made way (you see) for the admittance of terrene Exhalations to joyn their forces towards the effecting of supralunarie Comets, or new and strange admired starres. This, I say, I have proved as a thing both possible, and not unlike. But that they do alwayes therefore thus concurre, I am not certain; neither will I stand curiously to decide it.

Let therefore learned *Tycho* his tenent go for currant concerning *Cassiopea's* starre, that the heavens onely were the materiall parents of it, and especially the *Galaxia*, or white milkie way; unto the edge of which place (whilest

(whilest it appeared) it was situated, and continued visible in the same, for the space of 19 moneths, or thereabouts.

And thus I conclude, adding herewithall concerning other Comets whose station hath been supralunarie, and time of continuance any thing long, that if in them there could be any right to challenge a portion out of the same storehouse, then questionlesse they were tyed to rest beholding both to the heavens, and also to the earth, for the matter of their composure. But for ordinary Comets the case must needs be otherwise, seeing their place and small continuing time confirm it.

These things for mine own part I think more probable then if I should affirm that the Planets afforded certain Exhalations, which by force of the Sunne are expired and exhaled from them, and being exhaled are made the matter of all kind of Comets above the Moon; yea and New starres also (as some affirm) consist of no other causes: wherein they dissent from *Tycho*, thinking (contrary to him) that the *Galaxia* affords no matter toward the composure of these appearances. For (as * *Fromondus*, a late writer, affirmeth) *Simon Marius* beheld a new starre in the yeare 1612, in *Andromeda's* girdle; and one *Justus Prygius* beheld another in the constellation of *Antoninus*; *Kepler*, in the yeare 1602, saw one in the constellation of *Pisces*; & *David Fabricius*, in the yeare 1596, saw another in the *Whale*; all of them farre enough distant from the *Galaxia* or milkie way.

* *Lib.* 3. *Met. cap.* 2. *Art.* 7.

But suppose all this; must the continuing starres therefore needs be forced to waste their own bodies, and spend themselves in teeming such ample portions of matter as are required for glittering Comets, or New strange shining starres? Surely if they should suffer their bodies to be thus exhaled, they could not choose but fall into a deep consumption, and be visibly disproportioned

in their ſhapes and figures, farre otherwiſe then we ſee them:For it is a long time ſince the world began,and no few Comets have had their ſeats above the Moon,where they all cry out againſt an opinion ſo improbable,ſhewing that the changes would be ſuch as would be apparent and viſible enough to every vulgar eye.

Beſides,it cannot but be granted,that for ordinary Meteors every ſtarre and Planet hath an exhaling virtue as well as the Sunne: why therefore ſhould they now deſiſt and leave it all to him, who,if he may have this libertie, will at the laſt ſuck them all to nothing ? Theſe men may well imagine (as they do) mountains in the Moon, with woods and groves, ſeas and rivers;and make every Planet another world : but yet 'twere good they knew that God made all but one, although the parts be two ; & that Adam being caſt out of Paradiſe was ſent to till the ground and labour the earth, which he ſought, not with the man in the Moon ; for he knew that that was not to bud forth with fruit, bear trees, and the like, becauſe it had another office. For *Let the earth* (ſaith the Almightie)*bring forth graſſe,herb, fruit, trees,* &c. *but let there be lights in the Firmament,the greater light to rule the day, and the leſſer light to rule the night.*

Alſo,if the Sunne ſhould work thus among the ſtarres, and that there ſhould be vapours exhaled from their bodies, how comes it to paſſe that we perceive no clouds in the Ethereall vault,and that we cannot ſee them glide between ſtarre and ſtarre, flying upon the wings of ſuch winds as muſt neceſſarily upon the admittance of this tenet be generated there ? Perhaps they will anſwer that theſe things may be,and we not ſee them,by reaſon of the great diſtance between us and them. Well, be it ſo ; yet know, that although we could not ſee them, we ſhould ſometimes feel them, and perceive our mother earth to be watered with ſhowers of rain, when we

ſee

see nothing but a clear skie over us. But it may be they again will answer, that the starres do not frequently afford such Vapours and Exhalations, but sometimes onely: and then, if they be not copious enough to make such a cloud as may shine like a Comet or blazing starre, they are rather dispersed into nothing, then turned into rain: for their matter is too hot and drie to make a raine cloud. In good time. The starres do not frequently afford such Exhalations; and why so I pray? surely the sunne is never so farre distant from some one Planet or other, but that he would make this his operation appear, if he had at all any such working, or power of exhaling matter from them; and, if not a waterie, yet a drie cloud might be visible. The starres surely are of such a nature that they be rather fed and nourished by vapours, then compelled to suffer an unwilling wasting caused by an exhaling virtue, which is improperly given onely to the Sunne, because onely to him: and from whence these vapours come, which upon all likelihood do continually nourish the starres, shall be shewed in the fourth dayes work.

Neither do some exempt the Sunne from these evaporations, but affirm that day and night he also expireth vapours from him: which others again denie, because they imagine that this publick lamp of the world ought to be more immortall, lest being extinct, he should be quite without light, and afford the world nothing but black and dismall darknesse.

That therefore which before I affirmed, joyning in part with *Tycho*, who fetcheth matter from the *Galaxia*, seems to me farre more probable concerning the generation of these appearances. For first, the *Galaxia* doth sensibly appear as if it were an ample storehouse, and had large portions of matter, reserved onely for such purposes; which, when there is a working in nature apt

and convenient to produce it, is liberally afforded, and sent thither where the most power is to attract it. And secondly, that an earthie Exhalation may sometimes be admitted to joyn with the abovesaid matter, this seems to me a reason, because, like other low and ordinary Meteors, these also shew themselves or first begin to shine in the Autumnall season, and not in the Spring, Summer, or Winter Quarter.

Article 3. *Of Thunder and Lightnings.*

NOw it followeth that I speak of such fierie mixt Meteors as are of lesse continuance then Comets or blazing starres: and by their generall names they are called Thunder, and Lightnings.

Concerning the first, which is Thunder, it is not properly any kind of Meteor, but rather an adjunct or depending effect.

What thunder is

For Thunder is nothing else but a sound heard out of a thick or close compacted cloud: which sound is * procured by reason of hot and drie Exhalations shut within the cloud, which, seeking to get out, with great violence do knock and rend the cloud; from whence proceeds that rumbling noise which we call Thunder. For when an Exhalation which is more hot then ordinary, meets with cold and moist vapours in the middle Region of the aire, and are inclosed all together in an hollow cloud, it cannot but be that they fall at variance; and by this strife being driven together, the Exhalation is made stronger: and either by the motion, or by an *Antiperistasis*, it is set on fire; which violently breaking the clouds whilest it seeks for libertie, gives an horrid sound. A similitude may be taken from a chest-nut, apple, or egge breaking in the fire; or from the cracking of moist wood, or any such like thing: for this is apparent, that when any inclosed hot wind is holden and withholden so as it

* *Joannes Bodinus putat a geniis aeris & dæmonibus semper fulmina jaci, & tumultum illum cœli ciri.*

it can have no vent, it will then seek it self a way by breaking the skin, shell, or case; and in the breaking, seeing it is with violence, it must of necessitie make a noise. And thus it is in thunder.

But observe that in thunder the noise made is not alwayes of a like sound: for in respect of the hollownesse, thicknesse, or thinnesse of the cloud, and small or great force of the Exhalation, the sound is altered.

Great cracks.

A great crack is caused when the cloud is very hollow, his sides thick, and the Exhalation very drie and copious: which if it break the cloud all at once, then it maketh a short and terrible crack, much like the sound of a gunne. If it rend the cloud all along, breaking out by leisure, then it makes a noise like to the rending of broad cloth, or the ratling of stones out of a cart.

Small cracks.

A small crack is caused when either the cloud or Exhalation is but weak; or the cloud strong, and the Exhalation of some little quantitie. And in small thunders it sometimes falleth out that when the sides of the cloud are stronger then the force of the Exhalation is able to break, that then it runneth up and down within, and sticking against the cold and moist sides, maketh a noise much like to the quenching of a hot iron in cold water, or of a squib made of wet powder: in which regard* *Plinie* seemeth to averre that thunder is, but the quenching of fire in a wet cloud. Also if the Exhalation be meanly strong, and the cloud of unequall thicknesse, then it breaketh out at the thinnest places, and makes a kind of buzzing noise like to a wind blowing out of narrow holes.

* *Lib. 2. cap. 43.*

Sometimes thunder and no lightning; sometimes lightning and no thunder.

And so sometimes it happeneth that there may be a thunder-crack and yet no lightning; and sometimes lightning without thunder,

The first is caused thus; either when the cloud is so thin that it cannot keep in the Exhalation till it be kind-

led, but suffereth it to go presently forth, making a noise like to the wind out of a pair of Smiths bellows: or else when the cloud is so thick, and the Exhalation so slender and thin, that although it stirre up and down within the cloud, yet it fireth not, but wastes it self within that prison, as not being able to get out. And thus may thunder be without lightning.

How there may be lightning without thunder.

The second is caused, when either the Exhalation and Vapour are both thin, and the cloud also as thin: or else thus, namely when many thin, light, and hot Exhalations by immoderate heat are drawn up from the earth, and by the absence of the sunne are destitute of that force by which they should be drawn up higher; yet somewhat aseending by their own nature, (in that they be light and hot) they meet with the cold, either of the night in the lowest Region, or else of the aire in the middle Region; and so by an *Antiperistasis*, or resistance of contraries, they are beaten back, and with the force of their motion set on fire, as in summer nights & evenings we often see after an hot parching day. Now this kind of lightning some call *Fulgetrum*.

The kinds of lightning.

Another sort they call *Coruscatio*; which indeed is nothing else but the shining of the lightning; the shining or glittering of it rather then the lightning it self: for in this regard we can perceive a flashing when there be no clouds above our Horizon; or if there be clouds, we see the flashing when our backs are turned from them; or else we often perceive even through a thick cloud that it lightened, when the lightning came not so low but onely issued out of a thinner cloud which was above that thicker one, and shined through it.

Why we see the lightning before we heare the thunder.

A third kind is called *Fulgur*: and this is accompanied with thunder, caused by the strife and reluctation which the Exhalation maketh in the cloud, shewing it self in the breaking of the said cloud; and although the crack be

be heard long after we have seen the fire, yet they come together; the seeming difference being, because the quicknesse of our sight preventeth our hearing; which is so much the sooner done, either when the thunder is farre off and not near unto us, or when the wind is contrary; which is also seen in the cleaving of wood, or any the like knocking: for let us be but in some sort distant from the partie making the noise or striking the blow, and we shall see the ax heaved up again before we heare the sound.

The worst kind of lightning.

The next is *Fulmen*; and between this and the other is a great difference. For *Fulmen* is an Exhalation which in respect of its quantitie is so copious, and in respect of its qualitie is so hot and drie, and mixed with so many other vapours of a contrary nature, that when it breaketh the cloud wherein it is inclosed, it comes with such a violence, and continues burning so long, that it falleth even to the very ground, making a more fearfull *fragor* or crack then ordinary: And oftentimes a great stone is blown out of the cloud with it; whose cause is also naturall. For when the Exhalation is drawn up with more then an ordinarie violence; or is so drawn up, or from such a place as it may carrie much earthie matter with it, then is the stone procured. The matter causing it at the first is thin, and like unto the finest sand that can be imagined; yet nevertheless through the moisture which it getteth in the Aire, and by the meeting with wet vapours in the ascent, it clottereth together, and being also it self of a kind of clammie nature, it disjoyneth not, but sticketh fast: and then by the excessive heat which it findeth in the generall matter of the Exhalation when it is fired, it is throughly hardened, even as a brick which is burned in the fire: & being * thus hardened and burnt, it breaketh forth with the Exhalation, and they both come tumbling down together. For the force of the Exhalation

The making of the thunder-stone.

* Or thus; *Generatur ex exhalatione terrestri viscosa, & humore nubis, quos ardor fulminis celerrimâ transmutatione in ipso etiam casu (nam grave ibi suspendi aut herere non potest) permiscet, & in laterem coquit*, Fromond. lib. 2. Meteorolog. Artic. 7. cap. 3.

halation shoots it out, and look whatsoever is in the way, it overthroweth, burneth and dasheth in pieces. Howbeit, when it striketh the earth, it is reported to go never above five foot deep.

All this is pertinent to that which is called *Fulmen*. But for that other, which is *Fulgur*, the case is farre otherwise. For in regard of the little plentie of the matter it never falleth to the ground, but is wasted and consumed by the way.

Three kinds of *Fulmen*.

Moreover, Philosophers make three kinds of *Fulmen*; *viz.* *Terebrans*, *Discutiens*, and *Urens*: or (as some call them) *Scindentia*, *Infuscantia*, and *Urentia*.

The first kind is drie of qualitie.

1. The first is said not to burn, but rather to pierce, cleave, and extirpate such things as are obvious to it. For seeing it is more subtill & pure then grosse, as also wondrous drie, and carrieth with it great plentie of spirits, wind, or breathings, it must needs produce strange effects, and passe through the pores of any thing be they never so small; striking through with such wonderfull swiftnesse, as that it cannot possibly hurt, but where it is resisted and hindered by the close composure of that matter against which it striketh. And hereupon it comes to passe that money is sometimes melted in the purse, & the purse not hurt at all; the bones broke, and the skin sound: yea and sometimes the whole man burnt to ashes when his clothes are not consumed, with many the like strange accidents. And why it should cleave a wine vessell and the wine be so dull as not to runne out untill some 2 or 3 dayes after, this may be a reason; *viz.* in regard of the swift alteration and change, whereby also all the clammineſse of the wine is drawn to the outwardmost part, which keepeth in the wine as in a skin, not suffering it suddenly to dispersе it self.

The second kind is something moist.

2. The second kind burneth not to ashes, but blasteth or scorcheth, leaving the tincture of fire, and as it were of

of smoke behind it; for the things which it striketh do use to look black, or of a sootie colour, like unto a chimneys stock. And this is caused in regard that this kind of lightning is farre more full of moisture then the other; and yet in a manner as subtill, swift and pure: otherwise it would not blast but burn.

3. The third kind is *Fulmen Urens*; and this is *magis igneum quàm flammeum*, more fiery then flamie; being of a grosse and earthy substance, having much slimie matter in it: which makes it therefore set such things on fire as are combustible, whensoever it meeteth with them.

The third kind is most grosse of the three.

And yet there are some things which (as * it is said) the lightning hurteth not. As for example. The * Eagle, Joves bird, is free. The laurell is not hurt: neither can the earth be wounded any more then 5 foot deep. Such places also as are covered with the skins of Seals, or Seacalves, are secure: wherefore of old time the tents of the Emperours were covered with them for their better safetie. *Suetonius* telleth us a storie of the Emperour *Caligula*, how he was scared with Thunder; who, although he bragged and boasted of himself that he was a god, and threatned warre with *Jupiter* for a shower of rain that fell against his mind, was nevertheleſse by and by so terrified with thunder and lightning, that he thereupon runnes and hides his head under a bed.

* *Plin. lib. 2. cap. 55.*

* The Poets therefore write that she carries Jupiters armour, which is lightning.

Moreover it is said, that if lightning kill one in his sleep, it openeth his eyes: if it kill one whilest he is awake, it shutteth them. The reason being because it waketh him that sleepeth, and killeth him before he can shut his eyes again: and him that waketh it so amazeth, that winking he dieth before he can open those eyes of his which the sudden flash of the lightning caused him to close.

And know that it is not good to stand gazing upon the lightning at any time: for when it doth no other hurt, if it

Not wholesome to gaze on the lightning.

it be any thing near us, it may dry up, or so waste the crystalline humour of the eyes that it perish the sight: or it may swell the face, making it to break out with scabbes or leprosie, caused by a kind of poyson in the Exhalation which the pores of the face and eyes admit and receive. For this is certain that the matter of lightning, seeing it cometh from sulfurous and other poysonous metallick substances, is much infected, and therefore hurteth where it entereth.

Sect. 2. Parag. 5.

Of such Meteors as are fiery onely in appearance.

Artic. 1.

The Galaxia *is no Meteor.*

AND thus have I done with all those kind of Meteors which are fiery in very deed, whether pure or mixt.

Now it followeth that I speak of such as are fiery onely in appearance; not being such as they seem to be, but rather seeming more then they are.

Some account eight of them, and make the *Galaxia* or milkie way to be one. But that last may rather be left out: For although *Aristotle* would have the *Galaxia* to be a Meteor, yet his opinion is worthily misliked of most men, and that not without good reason.

For if it were a Meteor, and of the nature of the Elements, as Exhalations are, it would be at the length consumed like to other Meteors: but this circle never corrupteth nor decreaseth; and therefore it is no sublunarie concretion attracted and formed out of the starres which are above it, and placed by their power in the highest part of the aire.

Moreover,

Moreover, if this his tenet were true, why hath it continued (the *Galaxia* I mean) in the same form, place, and magnitude alwayes from the beginning of the world untill now? And besides, other starres might also attain to the like luminous concretion as well as those which he imagineth to be over it.

And moreover, this milkie way of *Aristotle* would admit of a Parallax, were it so as he perswadeth; and according to the opticall consideration (saith noble *Tycho*) by the shining of the fixed starres through it, it would beget a strange refraction, differing farre from that which is occasioned by the vapours that are seen about the Horizon. For they seldome rise to the twentieth degree of altitude; whereas this, proceeding from the *Via lactea*, would reach to the greatest height.

Wherefore we may say that it is rather of the nature of the heaven, or a certain heavenly substance, but somewhat thicker then the other parts of heaven: or (if you will) much like to the matter of the starres, or to the substance of the moon; but diffused and spread abroad, and not conglobated into one bodie as the starres are. For although all be filled with aire from the earth to the fixed starres, yet there the matter may begin to be more thick, firm, and solid; and so the waters above the heavens are the better upheld. What the *Galaxia* is.

For conclusion therefore, not reckoning this amongst any of these Meteors fierie onely in appearance, I may account them in number seven.

As thus: 1. *The colours of clouds.*

2. *Many Sunnes.*

3. *Many Moons.*

4. *Beams of light.*

5. *Crowns or circles about the Sunne or Moon.*

6. *The Rain-bow.*

7. *Chaps or openings in the skie.*

Concerning

Concerning all which in generall, although they seem to burn, yet they do not, but are caused by refraction and reflexion of light, either from the Sunne or Moon, or brightest Planets.

Artic. 2.

Of colours in the clouds.

AND particularly for the appearance of colour in the clouds, it ariseth not from the mixture of the foure qualities, as it doth in bodies perfectly mixt, as herbs, stones, &c. but onely from the falling of light upon shadow or darknesse; the light being in stead of white, and the shadow or darknesse in stead of black. Not that they are alwayes perfectly white and black: for they differ according to the qualitie and composure of the cloud: wherefore some be very white, and that is when the vapour whereof the cloud consisteth is very subtil and thin; some yellowish, when the vapour is thicker; some ruddie and duskish, when it is meanly thick; some black, when it is very thick; and some greenish, when it is more waterie then ordinary, being best discerned when it is farre from the Zenith, and obvious by an oblique aspect.

Why red clouds are seen onely in the morning and evening.

The red and ruddie colours are seen onely in the morning and evening, when the light of the sunne is not in his full force; for at other times his light is too vehement, clear, strong and piercing. And by a diligent observation of these colours, I think a man may as easily judge of fair or foul weather and the like, as a physician may of the temperature of the bodie by inspection of the urine. But of colours you may see more * afterwards.

* *Vid. Parag. 6. Artic. 1.*

Artic. 3.

Of many Sunnes and Moons.

AND now concerning many Sunnes; they are called *Parahelii*, from παρὰ and ἥλιος; which is as if one should

should say, *apud solem* : because they are as it were with the sunne in place, as also not absent from him in splendour and fashion.

Their generation is after this manner; *viz.* when a smooth waterie cloud which is of equall thicknesse, quiet and still, is placed on the side of the sunne : not under the sunne, for then there would be a circle; nor opposite to the sunne, for then there would be the appearance of a Rain-bow : but on the side; which must not be too farre off, nor yet too near : for if it be too farre off, then reason telleth us that the beams will be too vveak to reflect in a convenient manner: or if it be too near, then the sunne vvill disperse it vvithout any image at all.

Novv if such a cloud as this vve speak of shall happen to be on both sides of the sunne, then the appearance vvill be as if there were three sunnes; vvhereas there is indeed but one : the other tvvo being the images of the true Sunne, seen onely by reflection or refraction upon the cloud on either side. Or be there more pieces of such a cloud then one, set at a convenient distance; then there may be many sunnes: even as in a broken looking-glasse, every part vvill shevv the shadovv of that face vvhich is obvious to it.

Moreover, these many sunnes may be said to have a double signification; the one naturall, the other supernaturall.

What is signified by many sunnes.

According to their naturall signification, they betoken rain and moist vveather; because they cannot appear but in a moist disposition of the aire.

And as for their supernaturall signification, experience hath vvitnessed, that they have appeared as the portenders of change in states and kingdomes; or as the foretokens of Gods vvrath upon sinners. For this is a rule, that such things as are strange may be derived both from naturall causes, and also include God the chief and best cause

A rule and an observation concerning strange sights.

cause of all things; by vvhose admired providence each thing is ordered, & by whose unspeakable wisdome each particular change hath been decreed: yea even in the course of nature (before ever nature vvas) he both foresavv and appointed hovv things should happen; although in respect of our vveakness and vvant of skill, the searching of them out be too abstruse and hard. For as I verily believe, that not so much as one poore sparrovv falleth to the ground vvithout Gods providence; so I do also acknovvledge, that by his providence likevvise he bringeth to passe these and the like things, for such ends, as he in his secret counsell hath determined; using his creatures (vvhose courses in each particular he both set and foresavv) as instruments and means to effect them.

But I proceed. And as for the supernaturall signification of these sunnes, experience (I say) hath vvitnessed that some strange thing or other usually followveth after them. As not long before the contention of *Galba, Otho*, and *Vitellius*, for the Empire of Rome, there appeared three sunnes, as it vvere pointing out the strife vvhich followved soon after betvveen them three * for the imperiall diadem.

* Fulks Meteors.

Also in the yeare * 1233, upon the 7 day of April. foure sunnes vvere seen besides the naturall sunne: in vvhich yeare (as *Lanquets* chronicle testifieth) there vvas great debate kindled, and much variance stirred up betvveen *Henry* the third, K. of *England*, and the Lords of his kingdome: and in the very * next yeare, *England* vvas vvasted vvith fire and sword from *Wales* to *Salisburie*; vvhich said town vvas also burned: and at the same time vvas a great drought and pestilence.

* Stows Abridg. of chron.

* *Stow, ibid.*

Also in the yeare * 1460, three sunnes again shevved forth their orient faces, which vvas but the day before the three Earls, *viz. Edward* Earl of *March*, vvith the Earl of *Pembroke*, and Earl of *Wilt-shire*, fought their great

* *Idem.*

great battels in *Wales* at *Mortimers* crosse (as *Stow* in his Abridgement affirmeth ;) where the Earl of *March* put the other two to flight, and slew many of their people. And again, in the yeare 1526. towards the slaughter of *Lewis* the second, King of *Hungary*,* three sunnes marched out, * betokening the three Princes which strove for the kingdome after him: which three were these, *viz. Ferdinand*, who was afterwards Emperour, and *John Sepusio Vaivode* governour of *Transilvania*; as also *Solyman* the Magnificent, or great Turk, being one of the hardiest captains in all his time.

*Fulks Meteors.
* In the yeare 1619 were 3 also seen at *Louain* in the moneth of May, at the rising of the Sunne. *Fromund. Met. lib. 6.*

And now after the consideration of many Sunnes, it followeth that I speak of many Moons, of which it is no hard matter to know the naturall cause, seeing their generation is, as before hath been shewed concerning many Sunnes.

For if a watry Cloud shall side-long sit,
And not beneath or justly opposite
To Sunne or Moon; then either of them makes,
With strong Aspect, double or treble shapes
Upon the same. The vulgar then's affrighted
To see at once three sparkling Chariots lighted;
And in the Welkin, on nights gloomie throne,
To see at once more shining Moons then one.

DuBart.

Artic. 4.

Of Beams or Streams of light.

NExt unto these I mentioned Beams or Streams of light, and they are generated after this manner; namely when the light of the Sunne falleth into a watery cloud of unequall thicknesse, or rather of unequall thinnesse; or into such a cloud whose parts are some of them of a spungie nature, and some of them more closely compacted: For the thinner & more spungy parts receiving the light do represent certain clear and white streaks or

or beams, whileſt the thicker parts and more full of humour are not pierced at all, but look of another hue; from whence it comes to paſſe that theſe ſtreams are often of differing and many colours.

Artic. 5.

Of Circles or Crowns.

CRowns, Garlands, or Circles, are ſeen ſometimes about the Sunne, ſometimes about the Moon, and ſometimes about the brighteſt Planets, as *Jupiter* & *Venus*. This appearance is commonly called* *Halo*; and the matter or ſubject of it is a cloud, which muſt be endued with three properties: Firſt, that it be thin and not thick; Secondly, that it be equall and uniform, not in one part more thinne then in another; And thirdly, that it be directly under the Sunne, Moon, or any ſuch ſtar whoſe beams cauſe the circle: Unto which adde this laſt, namely that it be not diſquieted by any wind. And being thus placed and compoſed look how a ſtone caſt into the water makes a circle untill the force of the blow be waſted; So this watery cloud being ſtruck with the force of the Sunnes, Moons, or ſtarres beams, doth retain their light in form & manner of a circle. Or rather thus; the beams of the ſtarre, &c. equally diſperſing themſelves ſo farre as they can, do at their utmoſt extent make a refraction in the cloud, which muſt of neceſſity be round, becauſe the body of the ſtarre it ſelf is round, and cannot poſſibly ſend out his beams further in one place then in another. This therefore made *Du Bartas* ſay,

Sometimes a fiery circle doth appear,
Proceeding from the hauteous beams and clear
Of Sunne and Moon and other ſtarres aſpect,
Down-looking on a thick-round cloud direct;
When, not of force to thruſt their rayes throughout it,
In a round crown they caſt it round about it.

And

* Halo, Græcis ἅλως nominatur, hoc eſt, Area: quoniam (ut Seneca teſtatur) ipſa veteres terendis frugibus loca deſtinata ferè rotunda fuerunt. Latini Coronam vocant, quia rotunda plerumque conſtat figura, & ſidera cingere atque coronare videtur.

And note that sometimes it appeareth greater, sometimes lesser: which is in regard of the qualitie of the matter whereof the cloud consisteth. For if it be grosse, the beams piercing it can spread or dilate it but a little way. If it be thin, they then are able to dilate it further.

And as for their significations, they sometimes signifie rain, sometimes wind, sometimes fair, clear, and calm weather, sometimes frost, sometimes tempest, and sometimes snow.

The signification of Circles.

1. Rain, if the circle wax altogether thicker and darker.

2. Wind, when the circle breaketh on the one side: The reason whereof is, because the circle is broken by the wind which is above and not yet come down to us here below: But by this effect above, we may gather both that it will come, and also from what quarter; namely from that quarter where the circle breaketh first.

3. But if it vanish away and be dissolved altogether, or in all parts alike, then it is a token of fair weather:

4. Or of frost, in winter, when it is great about the *Moon:

5. Of snow, when at the same time of the yeare it seemeth to be craggie and rockie:

6. Or of tempestuous weather, when it looketh ruddie, and is grosse, and broken in many parts.

And thus much concerning Circles.

* They are very seldome seen about the Sunne, because of wind in the day time; or because the Sunne either draweth the vapours too high, or else disperseth them too much. In the yeare 1104 there was a blazing starre and 4 circles about the Sunne, which was a signe of the new kindling malice again between Henry the first, King of England, and his brother Duke of Normandy. Stow in his chron.

Artic. 6.
Of the Rain-bow.

THe Rain-bow is to be spoken of next: And this is nothing else but the apparition of certain colours in an hollow, watery, distilling, or dropping cloud directly opposit to the Sunne, representing in its fashion half a circle.

Or thus; It is a bow of many colours, appearing in a dewie, dark, droppie, and hollow cloud, by reflection of the Sunne-beams opposite to it. For this is certain, that lightsome or luminous bodies do cause images, colours, or appearances upon slender, clean, and thin objects: Now of all bodies the Sunne is most lightsome; but the aire and water are clean, thin, and slender.

The efficient cause of the Rain-bow.

Here then it appeareth that the Efficient cause of the Rain-bow is the light or beams of the Sun; which falling into fit, apt, or convenient matter, opposite to them, are refracted and reflected to our sight.

The materiall cause.

The Materiall cause is not water in act, nor yet thick aire, but a dewie vapour; which is not *continuus, sed potiùs corpusculis guttularum discretus*; not absolutely of one bodie, but rather severed into many bodies, or little drops.

The formall cause.

The Form of it is to be gathered out of the Figure and Colours.

And for the Figure, we see it is circular: But yet it never representeth to us any more then a Semicircle: and not alwayes so great an arch: The reason of which is, because the centre or middle point of the Rain-bow, which is diametrally opposite to the centre of the Sunne, is alwayes either in the Horizon, or under it: So that seeing our sight of the heavens is cut off by the earth in such a manner as that we can never see above half of them, it must needs be, that the appearance of this circle be either more or lesse to us, according to the Sunnes great or little distance from the Horizon.

The colours in the Rain bow

And as for the colours, they are commonly accounted three, *viz.* Ruddie, Green, and Azure. To which some adde a fourth. The first is in the thickest and darkest part of the cloud: For where a bright shining falleth upon a darkish place, there it representeth a ruddie colour, being somewhat like a Flame. The second is caused dy a more weak

vveak infraction, being in a remoter and more vvaterie part of the cloud: vvhereupon it looketh greenish.

The third, vvhich is further into the cloud, proceeds from the vveakest infraction, and is therefore of a more dark and obscure colour, tending to a blevv or an azure hue. And sometimes a fourth colour is also perceived, being very like a yellovv or orenge-tavvnie, proceeding from a commixture of the red and green, according to *Aristotles* judgement: of vvhich the learned may see *Jul. Scaliger, exerc.* 80. *sect.* 4.

Novv these colours in some rain-bovvs are more vehement or apparent, in others more remisse or obscure; vvhich is according to the aptnesse of the cloud, &c.

Moon-bows.

And in rain-bovvs caused by the moon (for sometimes, though seldome, they have been seen in the night) the colours are vveaker, vvhiter, and lesse conspicuous; being in a manner as vvhite as milk: vvhich is, because the moon having a borrovved light, is nothing so strong in the projecting her raies, but farre more feeble then the sunne.

The finall cause.

But come to the finall cause, and you vvill find it tvvofold; partly Naturall, partly Supernaturall.

How to judge of the weather by the rain-bow.

As it is Naturall, vve take it either as a signe of rain, because it cannot appear but in a vvaterie cloud, vvhich is so prepared that it is ready to fall in very drops: or as a signe of fair vveather; namely then vvhen the beams of the sunne are strong, and the heat of it so great that the moisture of the cloud is dried up, and the drops attenuated into thin aire. All vvhich may be discerned after this manner, *viz.* when the colours grovv either darker and darker, or clearer and clearer. For if the colours appear dark, thick, or obscure by little and little, till at the last they bury themselves in a black cloud, then rain followeth. But if the colours by degrees grow clearer and clearer till at the last they vanish away, then vve may

expect fair and bright weather. And this as it is a naturall signe.

But now as it is Supernaturall: and then we behold it as a signe or symbole of Gods mercie towards the world, betokening that it shall never be destroyed again through any Deluge or universall Floud. For *it shall be a signe of the covenant* (saith God) *between me and the earth*, viz. *that there shall be no more a Floud of waters to destroy the earth*, Gen. 9.

The derivation of Iris, signifying the rain-bow.

From both which significations or ends, it may well be called *Iris*; for εἴρω in the Greek is as much as *dico* in the Latine, signifying *I say, I publish, I tell*, or *I declare*. *Iris* therefore comes from εἴρω, *dico*; First, because this bow publisheth or telleth to us the constitution of the aire. Secondly, because it declareth the covenant of God made with the world after the Floud; shewing that his wrath is so farre forth appeased, that he will never drown the world again; which appeareth even in the order observed in placing the bow: for we see it with the bended ends downwards, and as one that holdeth a bow in peace; insomuch that had it a shaft in it, the earth should not be shot; neither ought man to fear that the Lord will shoot any more such arrows of displeasure as before.

Some have thought that there was no rain-bow before the Floud, but that it appeared since; because God saith, *When I make the heaven thick with clouds, I will put my bow in the clouds*, Gen. 9.

The rainbow was before the Floud.

To which it may be answered, that God saith, not that he will of new create a bow, but that he will then put it into the clouds so as it never was before: namely to be a signe, &c. So that although it were not as a signe of any covenant before the Floud, yet without doubt it was as a Meteor then as well as now; and therefore was: otherwise we might deny both bread, and wine, and water

water to be before the institution of the Sacraments :for it is the same reason. Wherefore, as there was water before ever it was used for the water of regeneration in the Sacrament of Baptisme ; and as there was bread and wine before ever they were used as signes at the holy Communion:so also the rain-bow was before ever it had that office to be a signe of Gods covenant between him and mankind, just as at this day it appeareth even to such as are not of the Church; very Heathens and Pagans beholding it as well as we.

Besides, there were from the beginning the same causes in nature to produce it:for there wanted neither a sunne to draw vapours from waterie places, nor yet a convenient place in the aire to thicken them into clouds ; neither was the sunne destitute of sparkling raies to make reflection and infraction : but as it is caused now, so also then ; and to think otherwise were to think amisse.

Some again have been perswaded that this bow was before, but was not in a cloud before. And thus thought certain amongst the Hebrews.

But this is a reasonlesse assertion, and against all Philosophie, and not at all approved by Divinitie. For how could that appear in a clear aire, which can have no existence or being, but in a dewing or distilling cloud ? Verily of both absurdities the former was the better, namely that it was not at all : and yet that also wanted grounds to uphold it, as hath been shewed, and is yet further manifest. For seeing the Lord God in six dayes finished the creation, and set the perfect order of all his creatures ; it followeth that the rain-bow had then his place either in being or in power. And thus from two absurdities I bring you to a third. For furthermore, it hath been the opinion of some idle doting brains to think that there shall be no rain, nor rain-bow, 40 years before the

A grosse absurditie of some who think that there shall be no rain nor rain-bow 40 years before the worlds end.

the end or destruction of the world by fire; because the very aire (say they) must be prepared a long time before by a continuall drinesse, and each thing made fit for combustion.

Which surely is a brain-sick phancie. For what do they in this but shew their extreme follie; derogating, not onely from reason, but also from the power of God? For is not God able to destroy the work of his own hands without such a supposed preparation, and make the world combustible in an instant, if need be? Or should there be no rain, and consequently no bow (because it appeareth in a waterie cloud) then how should the fruits of the earth be preserved? Great famine and miserie must needs follow in the world if this be true. For when the clouds drop no fatnesse, then the ground pines away through barrennesse; and vvhen the heavens are iron, then the earth is brasse: whereas it is manifest, that at the coming of Christ there shall be pleasant and fruitfull times; times full of mirth, wherein they shall eat and drink, marrie and be given in marriage, even as it was in the dayes of Noah. Who therefore will think that these men are in their right minds, whilest they affirm that no rain shall fall by the space of 40 years before the vvorld endeth?

What the Jews do at the sight of the rain-bow.

The Jews as soon as they behold this bovv (not daring to gaze upon it) do presently go forth and confesse their sinnes, acknowledging that they are worthy to be destroyed with a Floud as the old world was; and in being spared they celebrate the mercie and clemencie of God for sparing them. But, saith * *Pareus*, although they mingle this religion with much superstition, because they dream that the name of *Jehovah* is as it were engraven on the bow, and because they turn their eyes away as from the majestie of God appearing there, not daring to look upon it, lest (as may be said) beholding the

* On Gen. chap. 9. pag. 898.

the face of God they die: Yet it is meet even for us upon the sight of it to be so farre forth touched with a reverence towards God, that we passe not away the symbole of the covenant with a brutish dulnesse, lest thereupon we grow unmindfull of Gods severitie and goodnesse.

There is also another thing observable concerning this bow which I may not forget; namely this, The mysterie which (according to some mens phancies) is involved in the colours. For in a mysterie they would have it betoken both the baptisme of Christ, by water and fire; & also the two judgements of the world, the one alreadie past, the other yet to come: that which is past appeareth in the watery colours, shewing that the world hath been drowned: that which is yet to come appeareth in the fiery colours, shewing that the world shall be destroyed by fire, or burnt up at the day of judgement. But (saith * one) these and the like applications are wittie and prettie, rather then wise and pithie: I leave them therefore, and proceed.

* Dr. Willet on Gen.

Artic. 7.

Of chaps or gapings in the skie.

THe Philosophers call this Meteor *Chasma*, ἀπὸ τοῦ χαίνω, *quod est hio, vel dehisco*, to gape or open: and in Latine it is *Hiatus*, a word of the same signification. There are two kinds of these gapings or openings: the one wide the other round. And although I reckon these among such fiery Meteors, as are fiery onely in appearance; yet it may be that they sometimes burn, and sometimes onely seem to burn.

They seem to burn when the Exhalation by reason of the* want of viscuous matter is not enflamed, but enlightned rather on the outward parts, having much raritie or thinnesse in them: at which time the middle part re-

* Tiselman compen. nat. Philosoph.

ceiving no light, in regard that it is black and thick, there appeareth as it were a gulf in the skie. The reason whereof is, because the black is compassed about with white; which white presenting it self * sooner to the sight then the black, makes the black seem to be farre off, and the white near hand: and the black being farre off, seems like a gaping deep: which (as hath been said) is sometimes * greater, sometimes lesse, according to the fashion or quantitie of the Exhalation, or cloud represented by it. And after this manner do cunning painters deceive the eye in shadowing their pictures. For when a bright, clear, and aery colour is laid circularly, and a thick, dark, and obscure colour in the middle of it, then the appearance is like some gulf, hole, deep or pit: which they fashion diversly according to their skill in phancying the laying of their colours.

* *Quæ clara sunt, albóque apparent colore, celeriter visum movent: quæ vero nigra & obscura sunt, minus eum afficiunt.* * *Si magna fuerit, vorago; si non ità magna, hiatus nominatur. Tiselmann.*

All this is when it burneth not.

But note that sometimes this Meteor burneth in very deed. Which is when the Exhalation hath much viscositie or clammie matter in it; the thick and dark not burning, but remaining in the middest; and the thinner parts on fire, deceiving the sight with a seeming gaping, as before when there was onely light in those thinne parts in stead of fire.

And thus have I shewed you the naturall cause of all fiery Meteors.

Sect. 2. Parag. 6.

Of watery Meteors and their severall kinds.

NOw it followeth that I speak something of watery Meteors, and shew after what manner they are generated. They be called watery because they consist most of water; their substance being that kind of Exhalation which we call *Vapor*, and not *Fumus*.

And

And that which in the first place offereth it self, is *Nubes*, a Cloud.

Artic. 1.
Of Clouds.

I Begin therefore with clouds. And a cloud is a vapour or Exhalation cold and moist, drawn from the earth out of wet or watery places, by heat of the Sunne, into the middle Region of the aire; where by cold it is so thickned and knit together, that it hangeth, untill either *the own weight, or some resolution, causeth it to fall. If it be a great cloud, it is *Nubes*; if it be but a little one, it is called *Nubecula*. The name comes *ab obnubendo, id est, operiendo cœlũ*, from hiding or covering the heavens; because a cloud (through the thicknesse that the vapour is condensed into) hindereth, that a lesse portion of the heavens is conspicuous, then otherwise would be.

It is also tvvofold; either fertill, or barren.

A fertill or fruitfull cloud affordeth rain: but a barren cloud doth not; because it is at length by the blasts of vvind, and virtue of the heavenly bodies, turned into thin aire.

And to either of these clouds belong motion & colour.

Their motion is caused by the vvind most commonly, through vvhose force they are driven to & fro: But if the vvinds blovv not, then they are dravvn along by the Sun, and made a companion vvith him in his travels, alvvayes moving that vvay vvhich the Sun goeth.

Concerning their colours I spake before in *Paragraph* 5. *Article* 2. And therefore here you may expect the lesse: yet let me say that they are either simple or mixt.

Black or vvhite are simple; because they consist of no other colours. But red, green, and the rest, are mixt.

They

* It is said that clouds have sometimes fallen down to the earth with great noise, to the terrour & damage of such as had them in their Zenith, which clouds came but from the highest part of the lowest region: yet nevertheless they were generated in the middle Region, but waxing very heavie have sunk down by little an little, till at last they seem to fall no further then the lowest Region: But this is seldome. They may also fall by drops through their own weight.

They appear vvhite vvhen the vapour is thin; for then it is easily pierced by the light, vvhich disperseth it self into it.

But vvhen they appear of a * black colour, then the vapour is thick, and more closely condensed : insomuch that the beams of light cannot be admitted.

Nigredo in nubibus ob vaporum densitatem oritur, quæ lumen collustrans non admittit. Et sic è contra fit Albor; viz. è vapore subtiliore & pariùm conspissato, quem radius facillimè penetrat, & æquabiliter in illũ spargitur. Goclen. Disput. Phys.

As for their rednesse, it may be caused tvvo vvayes, according to *Goclenius*: either through the adustion of the aire, *magno æstu incensum*, as he saith: Or *propter retusũ radium Solis*, by reason of the beams of the Sunne beat back again; vvhich, falling upon a vvatery cloud that is thickly condensed, pierceth not; but being doubled causeth rednesse, as in the morning: and this is a signe of rain: but the other is not. For the other rednesse is in such a cloud as shevveth the drinesse and adustion of the aire; the cloud it self consisting of a smokie humid substance, unto vvhich is joyned a kind of drie and adust matter. This therefore is a signe of *fair vveather, being seen in the evening tovvards the place of Sun-setting; according as it hath been said of old, *Serò rubens cœlum, mane indicat esse serenum.*

Vespertina rubedo serenitatem significat, quia rubedo nubem raram æstu solis exsiccatam, ejusque humorem absumtum esse denotat. Sed matutina rubedo pluvias aut ventos promittit, quia vapores humidarum & subdensarũ nubiũ absumi non potuerunt. Ibid.

Concerning green clouds they are altogether vvatery, and as it vvere already resolved into vvater; vvhich receiving into them the light appear green, like unto vvater in a great vessel, or in the sea and deep rivers.

Blevv clouds come something near to the nature of black, excepting that the black are thicker.

And note, If vvhen the Sunne sets, there appear or arise black dark clouds, it portendeth rain. Also observe the place opposite to the Sunne at his setting, *viz.* the East, and see if that be clear: for if it be pestred vvith black clouds, there is but small hope of fair vveather that night, or the next day.

The height of the clouds.

The common opinion is, that the height of the clouds is not above nine miles. But it is agreeable to no reason at

at all why any certain height ſhould be determined: for they are of unequall heights, differing both according to the matter of their compoſure, and alſo according to the time of the yeare; being lower in winter then in ſummer: for when the ſunne hath the greateſt force they then aſcend the higher; and in his ſmaller force they hang the lower. By which it appeareth that the ſunne helpeth to uphold them, and keepeth them (although heavier then the aire) even in the aire: for they ſometimes alſo follow his motion.

How the clouds naturally hang in the aire.

But note that it is not the ſunne alone which upholds them; for the aire it ſelf is alſo a cauſe of their not falling; and that both within the clouds, and alſo without them: within the clouds; for the clouds are of a ſpungie nature, and full of pores, which are filled with aire leſt there ſhould be *vacuum*; and this aire heaveth them up, cauſing them to aſpire: without the clouds alſo, becauſe they do as it were float up and down in the aire, as ſome heavie things do in the water, and yet not ſink, unleſſe their ſubſtance be too earthie and heavie.

Artic. 2.
Of Rain.

FRom clouds I proceed to ſpeak of rain. And rain is nothing elſe but as it were the melting of a cloud turned into water. Or, according to *Ariſtotle*, it is the flux of a fertill cloud reſolved by the heat of the ſunne into diſtilling drops of water, which being depreſſed with their own weight, fall down to the earth. For when the matter of the cloud, being a cold vapour, and earthly humour, is drawn from the earth and waters, into the middle Region of the aire, and there thickened through the cold, dwelling in the confines of that place, it is at the laſt diſſolved, and cannot therefore but fall down in drops: which drops, if they be great, are cauſed, either

either by the quick resolution of the cloud, or else by the little distance of it from the earth. But if they be smaller, then either the*great distance or slow resolution maketh them of no ample quantitie.

* This may be seen if any will but assay to poure water from an high place.

The first of these is named *nimbus*; the other is called *imber*.

And note that the dissolution (as hath been said) proceedeth out of heat; which is not onely of the sunne, but of winds also of an hot temper: as is seen in the southern wind, which bloweth up rain sooner then any other wind. And as for rains which come from cold coasts, and at cold times of the yeare, if the cloud be not at such times (as some may think) dissolved through the heat of any wind, it dissolveth it self through its own weight (being a little holpen by the sunne) for it continueth in the aire even whilest it can stay no longer. And at these times also, if we consider all aright, we shall find that the wind somewhat helpeth, although not so speedily as from hotter coasts: for naturally there is a kind of heat in every wind, (because it is an Exhalation hot and drie) although by accident (as from the nature of the place over which it passeth) it may be altered: of which I shall speak more afterwards. And besides all this, the secret influence of the Planets worketh greatly towards the dissolution of the foresaid vapours.

But I proceed. And now it followeth that I divide all sorts of rain into two kinds: First such as are ordinary; secondly, such as be extraordinary.

Ordinary and extraordinary rains.

I call those ordinary when nothing but water falleth. And I call those extraordinary which others call prodigious rains: as when vvorms, frogs, fish, vvheat, milk, flesh, bloud, vvooll, stones, iron, earth, &c. fall from the clouds. *Plinie* makes mention of many such prodigies as these, in the 56 chapter of his second book; setting dovvn the times vvhen they happened.

Prodigious rain-

Concerning

Concerning all which, next under God (the causer of the causes causing them) these or the like reasons may be urged to shew how it is possible they should be procured, and upon what causes they naturally depend.

1. And first for the raining of worms; it may be thought that the putrefaction of some dead carcasses or other hath been drawn up into the aire as fumes and vapours are, where it breedeth such worms as use to breed out of the like matter here below. Worms.

2. The like may be said of frogs, when the vapour is exhaled out of marish grounds at such times as they engender. Frogs.

3. So also of fishes; excepting that (as is supposed) the force of winds may suddenly sweep away little frey out of ponds upon montanous places: and so also little young frogs, with many the like things, may be taken up. Some write of a whole calf falling from the clouds; and have been thereupon perswaded that it is possible, of Vapours and Exhalations, with the power of heavenly bodies concurring, a calf may be made in the aire. But this is idle. It was therefore (as others write) taken up in some storm of whirlwind, and so let fall again. Fishes.

4. As for wheat and other grain, it hath been observed that their raining down hath often come in case of extremitie, to the great preservation and refreshment of the distressed: in which regard it may be supposed that it was an immediate work of God, wrought without the rule of nature: so, that were all the wits in the world prest into one, yet were they all too weak to shew a true cause of such a prodigie. Which made *Du Bartas* write concerning such; Wheat.

Let them declare what cause could yerst beget
Amid the aire those drizzling showres of wheat,
Which in Carinthia *twice were seen to shed;*
Whereof that people made them store of bread.

To

To speak therefore as I think, I will not boldly affirm how this was caused, but onely touch at the possibilitie of it; namely, that it might be effected like unto other strange rains, first drawn from the earth into the aire, and then sent down again. For (as I have * already said) in shewing probable reasons for such things as are strange, we do also include God the chief and best cause of all things. And so also we reade, that when the Red sea was bayed up with a double vvall, to give the children of Israel safe and free passage through it, God sent a strong East-vvind all that night, &c. by vvhich the vvaters vvere divided, Exod. 14. 21. And again, vvhen the Quails came and filled their tents, being as it vvere rained round about them; they vvere brought from the sea vvith a vvind, and let fall a dayes journey on this side, and a dayes journey on that side, even round about their camp, Numb. 11. 31.

* Paragraph 5. art. 3. and elsewhere.

He that hath seen (saith * one) an egge-shell full of devv dravvn up by the sunne into the aire, in a May morning, vvill not think it incredible, that vvheat and other grain should be dravvn up in much hotter countreys then ours is, much rather the meal or flower which is lighter.

* Fulk in his Meteors.

Milk.

5. By the like reason also it sometimes raineth milk: for vvhen the *intensissimus solis calor*, the vehement heat of the sunne, shall either dravv milk from the udders * of cattell, and shall mix it vvith the other parts of the cloud; or shall so throughly trie, purifie, digest or concoct the vapour, that it may look something vvhite, then vvill the drops look as if it rained milk.

* Which may the sooner be done in summer, and in hot countreys,

Flesh.

6. As for the raining of flesh, it is supposed to be after this manner, namely through the dravving up of bloud from places vvhere much bloud hath been shed, vvhich being clottered together seemeth as if it vvere flesh.

Bloud.

7. And so also it may rain bloud; namely vvhen it is not

not clottered together, but thinner, &c. In the yeare of Christ 480 was such a rain. As also in the yeare 864, near unto *Brixia* in *Italie*, was the like. Yea and before either of these times, our own * chronicles tell us that in the dayes of *Rivallo* King of the *Britains*, we also had bloud rained; upon which ensued great mortalitie of people. Histories make mention of the like wonders at other times.

* Lanquet, Stow, &c.

But, say some, there is often great store of bloud spilt and yet no prodigie appeareth. *Object.*

To which is answered, that it is not the ordinarie exhaling virtue which resteth in the starres and Planets that can draw up such bloudy vapours, although much bloud be spilt; but then onely when there is a more unusuall concurrence of causes: for sometimes they are disposed to one thing, sometimes to another. And for the working of any strange thing, it must be when there is a strange kind of combination amongst them. To which purpose we know (although we cannot alwayes directly see and demonstrate how they are mixed and combined) that they principally intend and cause at the same time other changes, of which the visible prodigie is but the proclaimer or fore-runner: as, if you look but a little before concerning Comets, you may see, and so rest satisfied. *Answ.*

And unto this also adde, that there may be drops like unto bloud, and yet no bloud drawn up: And this may be, either when the Sunne draweth vapours out of putrified watery places, in which (as I have often seen) in a drought resteth much slimie and red-coloured corrupted water; or else when the Sunnes immensive heat doth so boyl the water in the cloud, that like unto the urine which a man maketh in a burning feaver, it looketh red when it falleth. The like cause I gave before unto the water of a white colour: but know that it must then be

be of another qualitie, the matter of the vapour I mean: for there are some kind of waters, as is well known, which being boyled turn to white salt, &c. And as for a red colour, the ordinarie rain sheweth that it is possible: for we see that ordinary rain-water looketh alwayes more brown then spring or river-water, being as if a more powerfull operation would turn it into red.

Wooll. 8. The raining of wooll or hair, is when a certain mossinesse like wooll, such as is upon quinces, willows, and other young fruits and trees, is drawn up by the Sunne among Vapours and Exhalations, which being clottered together falleth down like locks of wooll, or hair.

Stones. 9. Concerning stones, they proceed from earthly matter gathered into the clouds, as before was shewed concerning the Thunder-stone, &c.

Plinie, in the 58 chapter of his second book, writeth of a strange stone which fell out of the heavens; the fall whereof was foretold by *Anaxagoras* in the second yeare of the 78 Olympiad.

Iron. 10. Iron may also drop out of the clouds, when the generall matter of all metalls, which is quicksilver and brimstone, with the speciall matter of mixtion making iron, are all drawn up together, and there concocted into metall: Or (as one saith) *Quando vapores metallici aut sulphurei in aëre indurantur, vehementi siderum caliditate*; When metallick vapours, or vapours of a sulfurous nature, are hardened in the aire by the vehement heat of the starres.

Earth. 11. And as for earth, chalk, dirt, and the like, it is drawn up in thin dust at the first with the vapour: Or else, by force of some wind blovving from caverns, or holes of the ground, it is carried up; and being conglomerated, or as it vvere glued together, falleth dovvn again.

12. But

12. But beside all these, there have sometimes been red drops, which falling upon mens garments have made a stain like unto a crosse. Such drops as these fell upon the * clothes of the Jews, when in the dayes of the Apostata *Julian* they went about to restore their citie and temple. For when the said *Julian* raged with impietie and devilish fury against the Christians, he gave the Jews licence to build their temple, that they might restore again their ancient sacrifices, and the like things that they longed for: at which time *Cyril* was Bishop of *Jerusalem*; and he (to animate the Christians) shewed that it was impossible for the Jews to finish that work which they had begun: alledging the Prophet Daniel in his ninth chap. at the 27 verse; and also that saying of our Saviour in the 24 of Matthew: by both which places it did appear, that *their house was left unto them desolate*, and that *there must not be one stone upon another*; but that *their desolations must be perpetuall.*

Red crosses.

* Ruffinus, *Histor. Eccles. lib. 1. c. 39.*

Thus it happened to the Jews. But this surely was a thing altogether miraculous. For their red crosses came not alone, but were accompanied with other prodigies. As first of all an Earth-quake, which overthrew and tumbled down their building which they had raised upon the old foundation. Then came forth a fire which consumed all their engines and instruments. And last of all fell these drops, imprinting upon their clothes, crosses with so deep a stain, as they were not able to wash them out: And both the * same night, and night after, was also a bright signe of the crosse seen in the skie, as *Theodoret* in his Ecclesiasticall Historie reporteth: adding herewithall, that when the Jews saw this, they fled and returned home, being perplexed through fear of a divine scourge; confessing that he, whom their forefathers had nailed to a crosse, was God indeed.

* Theod. *Histor. Eccles. lib. 3. c. 20.*

This was both the prodigie, and the issue of it: of

 which

which, being so plainly miraculous, I know not what to say.

Reasons concerning Red crosses at other times.

But I find that other times have in a manner afforded the like. Wherefore (although I speak nothing at all of these at this time thus miraculous) concerning them some reasons may be given.

* *Lib. 4. cap. 6.*

And not to go farre, *Magirus*, in the * Comment upon his Physicks, telleth us, that in *Suevia*, a Province in *Germanie*, in the yeare of our Lord * 1534, the aire distilled certain red drops, which falling upon linen garments, made such an impression or stain as was like unto a crosse. Which impression (as he alledgeth out of *Cardan* his sixteenth book *De subtilitate*) might be procured thus; *viz.* because a certain kind of extraordinarie dry dust sticked to those garments; which, by the piercing or through-washing drops falling upon it, was so miraculously divided into parts, that there seemed a figure as of a crosse. Or thus, because the woven threads in themselves had such a form. Or else (which is most probable) because the humour in the middle part lay on high, whereas the sides were but thin, and fashioned according to the dashing of the drop. For when a drop falleth upon any thing vvith a kind of force, vve see that most of the humour resteth in the midst, vvhilest certain sparkling raies are dashed about the sides: And thus he thinketh it might be then, in the fall of those staining drops; vvhich vvhy they stain, hath relation to that vvhich I said before concerning the raining of bloud.

* So also in Westphalia, *ann.* 1543. at Lovane, 1568. *ipso Pentecostes die.* And in the yeare 1571. *in ditione Embdensi, in Frisiis Orientalibus.* See Fromond. Meteor. *Lib.* 5. *cap* 6. *art.* 3.

The devil many times worketh in the Aire.

I vvill therefore novv conclude; adding in the last place, that the devil, by Gods permission, both often hath and also doth produce many such prodigies as these that I have spoken of, vvith sundry other like unto them; especially amongst the * Heathen, Pagan, and superstitious Nations. For he is *quovis homine scientior*, more subtill then any man; his knovvledge and skill vvhereby he

* Psal. 78. 49.

he vvorketh vvonders arising, First, from his spirituall nature, vvhich proclaimeth a large measure of cunning and vvisdome in him: for we knovv that there is a greater measure of knovvledge in man, then is in a brute beast, by reason of that nature vvhich God hath given unto man above beasts: and vvhere there is a nature and a substance beyond either, there must also be knovvledge above either. Secondly, God created him a good Angel; and although, like man, he lost much by his fall, yet thirdly by his long observations, and continuall experience, he hath as it vvere made up the breach, or vvant of his created knovvledge, by acquired skill: and therefore, vvhen he hath* commission, he can upon occasion vvork strange vvonders. As for example, nothing more familiar or common in* *Lapland, Lituania*, and all over *Scandia* as also in *Tartaria*, then to sell vvinds to mariners, and cause tempests; vvhich the vvitches and sorcerers there procure by the help and povver of the devil: vvherein he shevveth himself, according to his * title, *Prince of the aire.*

How it comes to passe that the devils knowledge is farre beyond mans.

Math. 8. 31.
Job. 1. 12.
*Saxo Grammat. Olaus magnus.
* Ephes. 2. 2.

Wherefore (as I said) I do not doubt, but that many such as the former strange prodigies, especially long ago in heathen times, and amongst heathen people, vvere procured by his povver. For vvhat did the magicians in the sight of Pharaoh, but as it vvere rain frogs, and turn the vvaters into bloud, although Moses and Aaron vvere by?

Exod. cap. 7. & 8.

Besides, it is apparent that in the little vvorld, I mean vvhen parties are possessed, the devil can cause them to vomit strange things out of their mouthes and stomachs; as crooked pins, iron, coals, nails, brimstone, needles, lead, vvax, hair, stravv, live eels, and the like; of vvhich many have been eye-vvitnesses, confirming the same for truth. All vvhich, he can as vvell & easily perform in the greater vvorld; causing the aire to spit, and the clouds to

vomit (for his ovvn advantage) most strange and prodigious things.

Zanchius his opinion vvas not much differing: for, speaking of strange rains, * he confessed (concerning some of them) that they vvere produced by such causes, or the like, as I before alledged; concluding for the rest vvhich vvere more occult, that they vvere truly prodigious; and caused, either by the povver of God, as portenders of his vvrath; or else by the sleights of the devil, through Gods permission.

Sentio (inquit) tales pluvias verè prodigiosas esse, & fieri aut solâ Dei potentiâ, coque iram Dei portendere; qualis fuit illa cum pluit sulphure & igne supra Sodomam, & alias urbes: aut etiam dæmonum præstigiis, Deo permittente fieri. Zanch. Tom. 3. lib. 3. cap. 5. quæst. 6. Thes. 3.

Artic. 2.

Of Dew.

DEvv offers it self in the next place, as being a near kinsman to rain. For it consisteth of a cold moist vapour vvhich the sunne dravveth into the aire: from vvhence, vvhen it is somevvhat thickened and condensed through cold of the night, and also of the place vvhither the sun exhaled it, it falleth dovvn in very small and indiscernible drops, to the great refreshment of the earth.

Why dew is but in the morning, and at evening.

And this is certain, that the morning and the evening are the onely times vvhen it falleth; the reason being in regard of the sunne, vvhich both positively & privatively causeth it. Devv at night is caused privatively: devv in the morning, positively. At night or in the evening privatively, because vvhen the sunne setteth, the lovvest part of the vapour, not being high enough to hang in the aire, falleth dovvn through absence of the sunne. And in the morning positively, because at the return of the sunne the residue of the vapour, together vvith the augmentation of it (haply by some condensed aire caused by cold of the night) is dissolved by his approching beams, and so made fit to fall, rather then hang any longer. For look vvhat vapours are about the Horizon at the rising of the sunne, are dispersed by his first approch; and so it comes to

to passe that the morning as well as the evening affordeth dew. But know that if the vapour be not conveniently placed, that is, if it be very high above the Horizon, or in a loftie station of the aire, then the sunnes approching beam neither dissolveth nor dispersetb it; whereupon we have no dew, but rather look for rain, because the matter of dew is still in the aire, staying there till it be turned into a cloud, and so into rain.

Why no dew is a signe of rain.

And now by this you may see what is the materiall, what the efficient, what the formall, and lastly, what the finall cause of dew.

The materiall cause is a subtill and moist vapour, being the thinnest of all vapours.

The efficient cause is the temperate cold of the night, together with the absence and approch of the sunne.

The formall cause is the sprinkling of most thin drops, which the hand can scarcely perceive.

And the finall cause, that (without rain) the earth may have some refreshment.

Yet nevertheless, this I find concerning dew, as it is of a calorificall nature, that * *rorilentas segetes collectas putrefacit*, because every externall heat is putrefactive.

* *Titulm. Phys. lib. 6. cap. 6.*

Also dew is a great enemie to sheep, begetting a deadly rot in them, or a dangerous flux of the bellie; which cometh to passe in regard of the humour being of much viscosity, and not throughly refined or purged. Wherefore your carefull and skilfull shepherds will never drive out their sheep to feed, untill the sunne or the wind have licked the tops of the grasse and flowers.

How sheep may get a deadly flux.

Also know that a windie night hindereth the falling of dew. Some say three things hinder it; *viz.* wind, great heat, and cold: for the most temperate and calm times afford it; when other times want it.

Hinderers of dew.

As for the kinds of dew, I cannot but joyn with them who divide them into three.

Three kinds of dew.

For there is, first, common dew; secondly, sweet dew; and thirdly, bitter blasting dew.

The common dew is ordinary.

Sweet dew is threefold. 1. *Manna.* 2. *Mel.* 3. *Ladanum.*

Manna.

Manna is said to be white like sugar: by some it is called *Cœli sudor.* The matter of it is a fat and pure vapour, not tainted with any putrid or corrupt Exhalations. Or, according to some, it is *roris melliti genus, sed concreti,* a kind of hony-sweet dew, but concrete or compact more close together: it falleth in the East parts, *Arabia, Syria,* &c.

Of the Israelites Manna.

As for that *Manna* which God rained to the Israelites in the wildernesse, some think that it was altogether miraculous; others that it was *ejusdē speciei cum Manna vulgari,* of the same kind with common Manna, which I also think; because *Josephus,* in his third book and first chapter, writeth, that in his dayes there was great store of it in that part of Arabia wherein Moses was 40 years with the Israelites. What should hinder this opinion, I see not, unlesse because the common Manna is of a purging qualitie, and therefore to be taken for a medicine rather then for food. To which I * find an answer, that haply at the first it might work the like effect on their bodies also, till it expelled the humours proceeding from the onyons and leeks that they eat in Egypt; but afterwards through custome it might not work at all upon them: or else God, for their good, that they might be fed, might allay that qualitie in it by his mighty power: for God resting from all his works on the seventh day, created no new *species* of any thing afterwards. *Fuchsius,* a learned Physician, testifieth that there falleth great store of Manna upon the mountain of *Libanus,* which is eaten without harm, although they take it in plentifull abundance. Yet nevertheless it cannot be denied but that

* Bonfrerius on Exod.

that the Israelites had many things miraculous in theirs: as that they could not find it on the Sabbath day: that he which gathered little, and he which gathered much, had alwayes sufficient for his eating; and the like: All which proclaimed the power of God: in which regard he saith that he fed them with * Angels food: Not that the Angels eat of it, but because it was *cibus excellentissimus*, a most excellent kind of meat; insomuch that were the Angels to be fed with bread, they might be fed with this. In which sense, we also call that which is daintie meat, meat for a King, or a Prince, intimating the goodnesse of it: So also the Poets called their * *Myrrhina* or their *Nectar*, the drink of the Gods, because it was a liquour of such excellencie. But besides this, the Scripture in like manner saith that it was bread from heaven, as well as Angels food. Not that it came from heaven, if heaven be taken in a strict sense; but because it was a symbole of Christs descending from heaven, as it is John the 6. *Moses gave you not that bread* (saith our Saviour) *but I am that bread of life come down from heaven.* Or else it is said to come from heaven, because it came out of the aire: for so the word signifying heaven is often used; as the fowls of the aire are said to flie in the open firmament of heaven, Gen. 1. 20. The clouds are called the clouds of heaven: and the winds, the winds of heaven, although they be but in the aire, Dan. 7. And thus much concerning *Manna*.

The Israelites. Manna was not without miracle in many respects.

* Psal. 78. 25. 26. How Manna is said to be Angels food.

* *Myrrhina* is a wine mixed with Myrrhe and other sweet spices.

How Manna is said to come from heaven.

The other kind of sweet dew is *Mel*, or an *Hony-dew*. Now this falleth, not onely in other countreys, but also here in England; and we cannot give it a more significant name then a *Mel-dew*, being both as sweet, and also of the same substance that honie is. Some suppose that it is drawn out of sweet herbs and flowers, which I also believe, acknowledging that there is a kind of resudation of juice proceeding from them at a certain

Hony-dew.

convenient time of their growth: which juice is either drawn up as a vapour, and so sweeteneth the dew in the aire by such time as it falleth; or else, issuing of it self from the said flowers and plants, but not ascending, it sweeteneth the dew after it is come down or fallen on them, although the said dew be but ordinary: for when ordinary dew falleth upon any of those leaves which yield such a resudation or sweat, it cannot but be sweetened, although none of the sweet liquour be drawn into the aire as a vapour with it. Now of these two choose which in your judgement is the most probable.

*Lib. 11. cap. 12.

*It riseth with *Sol* about the end of July.

*which is about the 17 day of April.

Plinie witnesseth that these dews are most common at the shining of *Syrius*, or the great* *Dog-starre*; & that before the rising of *Virgilia* or the* *Seven starres* in the morning with the Sunne, they cannot at all be.

Ladanum, the third kind of sweet dew.

*Plin. lib. 12. cap. 17.

Ladanum is another kind of sweet dew, *Arabia* hath great plentie of it, and no other countrey (as *Plinie* writeth) unlesse it be* *Nabathæa*, bordering on the Arabick coast of *Syria*.

It is called *Ladanum*, because it is a vapour falling upon the herb *Ladon* or *Ledum*; and is sweetened by the juice issuing from the leaves of the said herb, mixing it self with the vapour. Goats hairs are often found amongst it; because the Goat feeding upon that herb scattereth some of his hairs, which are incorporated with the vapour and the juice of *Ladon*, whilest like gumme it is hardened by the Sunne.

Blasting dew.

And thus much of sweet dewvs.

* *Magir. Phys. Com. lib. 4. cap. 6.*

Novv followveth that vvhich I called bitter *blasting dew*. The Germanes say it it* *Mildaw*; vvhich is an improper name if it hath relation to that vvhich vve call *Mel-dew*. For *Mel-dew* (as before I shevved) is an hony-svveet devv, and not a bitter devv. This therefore may be rather named *Ros noxius*, or bitter blasting devv, because it hurteth and killeth such herbs and plants

plants as it falleth on, and sticketh or cleaveth to. This vapour hath much earthly matter in it, and therefore it remaineth white when the moisture is gone. It is also corrupted: which comes to passe (as 'tis conjectured) through the often change of the aire, which being tainted or infected through varietie of differing Exhalations, sendeth down noysome and unwholesome dews, falling sometimes even in the day time it self. And here an end concerning dew.

Artic. 4.
Of white hoar-frosts.

I Come now to speak of Frosts: for as dew claimed kindred of rain, so white hoar-frost is of the house and linage of dew: As for example thus. When a vapour drawn into the aire is congealed before it can be turned into dew, then we have *Prusna* in stead thereof, or a white hoar-frost: so that such a frost is nothing else but dew congealed by overmuch cold. * *Aristotle* affirmeth the like, shewing among other things, that both in respect of matter, and place of generation, they do well agree; to which is also pertinent the calmnesse, clearnesse, and quietnesse of the time wherein either of them falleth. For both of them consist of subtill thin vapours, and are generated in the lowest region of the aire, because upon some high hills there is neither hoar-frost nor dew to be seen; the vapour (as it seemeth) ascendeth not so high: And as for a windie obscure time, it is an enemie to them both. The difference being, that hoar-frost is congealed in the vapour before it can be turned into water: The one caused in a season that is temperately warm; the other when it is cold. The materiall cause therefore of hoar-frost is a subtill thinne vapour. The formall, is the congealing

* *Lib. 1. de Meteo. cap. 10.*

ing of it; by which it differeth from dew. The efficient is the autumnall or winter cold: for those are the most common and ordinary times peculiar to it, although sometimes it comes as an unwelcome guest in the spring and summer, when the aire through cold is forward to send it. And last of all the end, or principall effects (when it cometh not out of season) or the finall cause, is the contraction, or shutting up of the pores or breathing holes of the earth, and about the roots of plants; that thereby their spirits, being the chariots of heat, may be contained in their own bowels for the good of such things as they give life unto. And thus much concerning frost.

Artic. 5.
Of Snow.

THere is no great difference between the matter of snow, and matter of rain and hail; excepting (as some think) that the vapour for snow is of an hotter qualitie then the vapour for rain, and yet not so hot as that which is the materiall cause of hail. For it is a tenet amongst Philosophers, that hot things being cooled are apter for congelation then cold: as is seen in warm water taken from the fire, which will more suddenly and throughly be frozen then that which never felt the heat. And this comes to passe in regard of the pores, or passages made into the water through heat: into which the cold entring, it both cooleth it the sooner, and congealeth it the more.

Hot things cooled are sooneſt congealed.

Neither is there any difference between white frost and snow; excepting that frost is made of a vapour before it be turned into a cloud; and snow of a cloud before it can be turned into water.

Arist. Met. *lib.* 1. *cap.* 11.

Snow therefore is a cloud congealed by great cold, before it be perfectly resolved from vapours into water.

The matter of snow.

For

For if it should come to the densitie of water before the congelation, then it could not fall so like locks of wooll as it doth; but would be more closely compacted or joyned together, having little or no spunginesse in it.

As for the whiteneſſe, it proceedeth not from its own proper colour, but rather in respect of those parts which are more aierie then the rest: whereupon I find some *Authours who determine the case thus; namely, that the white is by receiving the light into it at those many small parts; even as in froth and some is seen. For, say some, *Nix est spuma quædã. Snow is a kind of froth*: & when it loseth part of its frothie nature, and begins to melt, it loseth also part of that whiteneſſe which at the first it retained. To this also may be added the coldneſſe that is infused into it when it is congealed, as being a cause of whiteneſſe; even as in phlegmatick bodies and cold countreys may be seen: For such people are alwayes whiter of complexion then others; cold being the cause of that their whiteneſſe.

Why snow is white.

*Fulks Meteors.

* *Haventeus com in Arist. de Met. lib. 1.*

Such winters as are void of snow, are not so good for the fruits of the ground, as more snowie winters. Whereupon *Plinie affirmeth, that he which saith clear winters are to be wished, wisheth no good for the trees and plants: and in that regard your experienced husbandman desireth that the winter may be cold and snowie, rather then clear and warm: For besides this they also say, that a hot Christmas makes a fat Church-yard.

Warm winters hurtfull.

* *Lib. 17. cap. 2.*

Wherefore, to see the earth do penance in a cold white sheet, & the woods hang periwigd with wooll, bending their boughs in token of thankfulneſſe to gray-hair'd *Hyems* for their safetie from the cold, is a sight both wished & welcome: the good whereof will shew it self, when liberall Nature, out of her bounteous wardrobe, bestows more beauteous raiment on them.

And note it is found by experience, that it may snow on

One and the same cloud may give the mountains snow, and the valleys rain.

on the mountains, and rain in the valleys, and yet both come out of one and the same cloud; which comes to passe for this reason, because the snow coming from the middle Region melteth after it comes into the lowest Region: for here is alwayes more heat then above where the snow is generated; yet not alwayes heat enough to melt the snow as it falleth; neither will the congelation be alwayes so weak as to suffer it. And thus also it comes to passe that we have sometimes sleet, which is snow and rain together.

The reason of sleet.

Crystall.
* Fulk. Met.

Moreover (as some affirm) Crystall is made of snow: for *when the snow melteth upon the tops of high hills, and is afterwards frozen again, it then becometh so hard that it is a stone, and no other then that which we call Crystall.

Artic. 6.
Of Hail.

HAil is said to be engendred of rain being congealed into ice, the drops freezing presently after the dissolving of the cloud.

Or (as some say) a cloud resolved into water, in the fall congealed, maketh hail.

Aristotle assenteth to the same, affirming that the materiall near cause is rain; the remote a cloud; the efficient an *Antiperistasis*, or a mutuall adverse strife between cold and heat; as in the first book of his Meteors, at the 12 chapter, may be seen: affirming moreover that the precedent heat of the water whereof it is made, helpeth to the speedie concretion of it: being agreeable to that which I said before concerning snow; namely that it consisted of a warmer vapour then rain, and yet not of one so warm as that from whence hail proceedeth.

Whereupon I think we may make this a conclusion concerning

concerning hail, and say that it is an hot vapour dravvn into the middle Region of the aire; vvhere, by cold of that Region, it is made thick into a cloud, which falling down in drops like rain, is presently met withall and encountered by the sudden cold of the lowest Region, and so congealed into a kind of ice. Now this sudden cold thus meeting with it, is in the highest part of the lowest Region, and caused by an *Antiperistasis* of heat from below, which forceth up the cold to the greater augmentation of it; and so (because the vapour it self at the first vvas also vvarm) it doth very speedily turn it into ice: for seeing (as hath been said) it vvas formerly vvarm, it is the sooner cooled; because heat having made it thin, and full of passages, gives leave to the cold, both to pierce it more suddenly, and also more soundly. And this most commonly is the manner of generating hail.

What hail is.

But knovv that hail may sometimes also be made in the middle Region; & then it is vvithout an *Antiperistasis*: of vvhich sort for the most part is that small & spungie hail falling in vvinter, vvhen there is no such heat in any part of the aire, by vvhose *Antiperistasis* it may be congealed. For seeing the drops are scarcely come to the densitie of vvater before their congelation, as also seeing they are something svvollen through the spirit of the Exhalation, they appear not onely round, but also light, and hollovv, or of a spungie substance, little differing from the matter of snovv, being generated in the middle Region as vvell as this kind of hail. And thus comes hail in vvinter.

Winter-hail how and where it is made.

But at other times of the yeare, the hail being more stonie, or better hardened, it may vvell be caused by an *Antiperistasis* proceeding from the heat of this lovvest Region, vvhich sendeth up, imprisons, and augments the cold above it.

And knovv that hail-stones are not alvvayes of one & the

The sundry fashions of hailstones.

the same bignesse, but are variable according to the quantitie of the drops whereof they be made; the cause whereof is their propinquitie or remotenesse from the earth, as was shewed before concerning the different drops of rain. And for the most part, know that they be also round, because the drop is so. Yet nevertheleſſe they be sometimes knotted and piked with many corners; or else fashioned like a *Pyramis*: the last of which shapes proceedeth from the spirit of the vapour which ascendeth to the top of the drop so soon as the lowest part of it toucheth the congealing cold; and so ascending, it makes it smaller above then below. And as for the triangled, knottie, or many-cornered shapes, they are caused thus, *viz.* when many are suddenly congealed and frozen into one.

Note also, that sometimes little straws, or light chaffie stuff, is found within the stones; coming thus to passe, because they were at the first blown up from the earth by the wind, and mixed with the vapour.

And again know that sometimes you may see hailstones all icie and clear without, having within them (as their centre) little white round spungie parts. The reason of which is, because those white ones within were generated in the middle Region: but in their fall justling themselves against the drops of rain which uncongealed came from the same cloud, they gat a waterie substance on their outsides, which being frozen to them looketh clear like ice; and so makes the whole conglomeration appear in the shape and fashion before mentioned.

Hail doth many times much hurt.

Moreover, it hath not seldome been that hail hath done much hurt. Yet evermore the greatest fear is whilest the ripe corn standeth in the eare. For a violent storm of hail thresheth it so throughly, that turning the words a little, we may truely say, *Illa seges demum votis non respondet*

respondet avari agricola. Such a storm was felt in many parts of this kingdome not long ago, namely in the yeare 1631; which, about the beginning of harvest (beside the harm it did to other things) untimely beat out much corn in the fields to the great damage of many people. And at sundry other times also heretofore the like sad accidents have been. Wherefore the ancient husbandmen amongst the heathen (as *Cato* and *Plinie* mention) had certain charming verses to keep hail and other dreadfull calamities from their fields: in which they shewed themselves of a like mind unto those devilish enchanting hags, who made the Poet sing, *Carmina vel cœlo possunt deducere Lunam,* Charms can pull even the very Moon out of heaven. But this was not all: For beside these, *Palladius* also makes mention of others who would take the skins of Crocodiles, Hyena's, or Sea-calves, and lay them here and there about their grounds; or else have a bloudie Ax lifted up in threatning manner against the heavens; or an Owl set staring up, with her feathers spread abroad. All which are but magicall, devilish, and absurd practises; such, as even an old doting woman (whose confidence is the sheers and the sieve) cannot but acknowledge to be void of any the least shew of reason: fit therefore for heathens onely, and not for Christians. For let Christians know that there is a God above, who can better secure their seed sowen, then all those magick spells and foolish fopperies. For, * *A fruitfull land he maketh barren because of the wickednes of those who dwell therein.* Or, as it is in the 28 of Deuteronomie, *If thou shalt hearken diligently unto the voice of the Lord thy God, to observe and to do all his commandments, &c. then shalt thou be blessed in the citie, and in the field. Blessed shall be the fruit of thy body and the fruit of thy ground. But if thou wilt not hearken unto the voice of the Lord thy God, cursed shalt thou be in the citie, and cursed in the*

How the heathen used to secure their fields from hail and other harms.

*Psal. 107. 34. 35.

the field. Cursed shall be thy basket and thy store. Yea and cursed shall be the fruit of thy body, and the fruit of thy land.

Charms unlawfull.

Beside, adde unto this the danger of devilish practises, with the unlawfulnesse of charms and incantations. For thus again the Scripture speaketh, *There shall none such be found among you. For all that do these things are an abomination to the Lord*; as it is Deuteronomie 18. at the 10, 11, and 12 verses.

Here then I end this discourse concerning hail, and now proceed to speak of mists.

Artic. 7.
Of Mists.

Concerning which, I like their division best who make two kinds of mist; the one ascending, the other descending.

That which ascendeth (saith Dr *Falk*) goeth up out of the water or earth as smoke, but seldome spreads it self any thing farre; being most of all seen about rivers and moist places.

The other (saith he) namely that which goeth down towards the earth, is when any vapour is lifted up into the aire by heat of the Sunne, which, not being strong enough to draw it so high that the cold may knit it, suffereth it to fall down again after it is a little made thick; and so it filleth all the aire with grosse vapours, obscuring the Sunne from shining on us.

The discending mist is twofold.

Now this last kind of mist may be twofold; either congealed, or incongealed. That which is congealed comes near to the nature of that matter whereof white frosts consist; and is never but in a very cold time: it often also stinketh, which perhaps comes to passe in that the matter whereof it is made was drawn out of lakes, or other muddie and stinking places. Or thus; the matter

Why mists and fogs stink.

ter of this mist hath much earthy substance in it, which the hindering cold suffereth not to be consumed: and from this comes an unpleasant and an unwholesome smell. This water, as also the water of dissolved frost, is very bad for cattell to drink: for it will quickly rot them. Neither can it be good for any one to walk abroad in such a mistie time: For, by breathing, we draw this unwholesome vapour into our bodies, and so corrupt our lungs extreamly.

A rot for cattell, and an harm to men.

But for incongealed mists, they are in warmer and more temperate seasons, coming near the nature of that matter which is the matter of dew. Some call it a sterill vapour hanging near the earth, being neither moist enough to drop like rain, nor yet hot enough to be carried up on high into the aire. Yet as sterill as it is, sometimes we find that it is but the forerunner of rain: For when it departeth, if it ascendeth, then rain followeth; if it descendeth, then expect a hot and fair day. And here an end concerning mists.

How by a mist, to judge of the weather.

Artic. 8.

Of our Ladies threads, or those things which fly up and down the aire like spiders webs.

FOr mine own part I must confesse I have not seen many who have writ any thing concerning this cobweb-like kind of Meteor: and therefore at the first I rested doubtfull, not knowing whether it were best for me to speak any thing of it or no. But at the last finding that some false tenets were engrafted amongst the ignorant, as if they perfectly knew what thing it was, I thought good to adde something whereby their fond opinion might be taken away, who, as in a dream, suppose it to be spunne from out the spiders

bowels: which cannot but be a ſtrange abſurditie. For it is evident that ſome one of theſe threads containeth more matter then many ſpiders; their bodies not being big enough to afford a thing ſo copious: neither are their webs at any time of ſuch a length, or their threads of ſuch a thickneſſe, as theſe thus flying about the aire.

This Meteor therefore (ſince it is a Meteor) may rightly be ſuppoſed to proceed out of a through-boyled or digeſted vapour, being mixed with earthy and ſlimie Exhalations: and, although it be no ſpiders web, yet the temperature of it little differeth from that viſcuous humour and ſlimie * excrement which they in their ſpinning ſend out from them.

* And that's the reaſon why (when it hangs on the ſtubble, or the like places) we ſee ſo many little ſpiders buſie in it: for the matter doth as it were feed them, and (perhaps) through the Sunbeams, generate them.

As for the time, it appeareth neither in Summer nor in Winter, but in the Spring and Autumne; becauſe it requireth a temperate heat and temperate drineſſe. Yet the chief time is Autumne, becauſe the Aire hath then ſome drie relicks of the late Summers Exhalations left, and they are very neceſſary towards the tempering and generation of this Meteor.

And thus I end, not onely this Article, but the whole Paragraph alſo; coming at length to ſpeak of that third kind of Meteor which in the beginning I propounded to be handled laſt.

Sect. 2. Parag. 7.

Of Aiery Meteors; wherein is ſhewed the naturall cauſe of winds.

Artic. 1.

Of the divers opinions concerning wind.

IN the former Paragraphs and Articles pertinent to the ſecond Section of this chapter, I ſpoke at large (as is apparent) of every ſort, both of fierie and waterie Meteors:

Meteors: novv therefore (if you pleaſe) you may go along vvith me to thoſe which are called aierie; wherein I purpoſe to ſpeak concerning the generation of winds, ſhewing upon what cauſes they depend. And by the way I would have you obſerve a packet of opinions which have been poſted to and fro as if they vvere pertinent to the purpoſe.

1. For ſome in the firſt place may be found, who immediately referre the motion and generation of winds unto God, becauſe the winds are ſaid to be brought out of his treaſures, as you may reade, Pſal. 135. 7. And in the 4. of Amos, at the 13 verſe, *He formeth the mountains, and createth the winds.*

The firſt opinion.

To which I make this anſwer, that they who ſend us, concerning theſe and the like things, to God and to his decree in nature, or to the might of his power, have ſaid indeed that which is primarily true, but not ſhevved how it is ſecondarily effected. For although concerning ſome things extraordinary, the cauſe be hid; yet ſuch as be ordinary are not vvrought by the firſt cauſe vvithout an adminiſtration of the ſecond. As for example, God is not onely ſaid to bring the winds out of his * treaſures, but alſo to ſend forth the lightnings vvith the rain; as it is in the forenamed Pſalme: yet neverthelesse the Prophet Jeremie ſheweth that theſe are vvrought, not immediately, but mediately, by the help of ſecondary cauſes; as in Jer. 10. 13. *He cauſeth the vapours to aſcend from the ends of the earth.* By vvhich it appeareth that he maketh not the rain vvithout them, but of them; thoſe aſcending vapours being the matter of rain. And again; * *The day is thine, and the night is thine: thou haſt made ſummer & winter*; as in the Pſalmiſt. Yet neverthelesse we know that the day and the night, together vvith the ſeaſons of the yeare, are not made but by the motion of the ſunne and ſtarres; as it is in Geneſis 1. 14.

Anſwer.

* *Dum dicit, Deum producere ventos de theſauris ſuis, hoc tantùm innuit, ventorum materiam & exhalationem in terra tanquam theſauro incluſam eſſe, unde Deus ventos producit per cauſas intermedias & naturales, quæ ſunt calor ſolis & terra.* Havenreut.

* Pſal. 74. 17. 18.

second opinion.

2. Wherefore in the second place, seeing God worketh these things by means, the motion of the vvinds is attributed to the Angels, it being supposed that instrumentally they perform Gods will in this, causing the vvinds to blow, &c. Whereupon the Psalmist is again alledged, shewing that the * clouds are Gods divine chariot; the horses carrying it are the * vvinds; the coachmen are the * Angels, vvhom God calleth Cherubims; and his darts are hot * thunder-bolts, vvhich he casteth from the clouds. And furthermore, that Angels cause the winds, S. John declares it also, Revel. 7. 1. affirming that he saw foure Angels standing upon the foure corners of the earth, holding the winds that they should not blow. The Angels therefore move the vvinds.

Psal. 104. 3.
Ibid.
Psal. 18. 10.
Ibid. vers. 14.

Answer.

To vvhich again it is answered, that neither is this opinion sound.

For first, concerning the Psalmist, what doth that Prophet but in a figurative speech expresse Gods svviftnesse in coming to succour him?

And secondly, for the foure Angels standing upon the foure corners of the earth to keep the winds from blowing, I marvell that it can be taken so near a literall sense.

Napeir, in his Comment upon the Revelation, confesseth that the Jevvs indeed have certain books of antiquitie, dividing the government of the earth among foure great Angels, and under them they imagine to be many inferiour ones. But he withall acknowledgeth that they are assertions more curious then certain. And therefore he understandeth by these foure Angels, the good Angels of God; and the foure vvinds he expoundeth to be the spirits of Satan, and executours of vengeance. For in a figurative sense, these and the like things are to be taken.

Besides, the irregularitie of the winds, turning sometimes

times three or foure times in a day, doth sufficiently shevv (as it is elsevvhere witnessed by another Authour) that they are not immediately governed by any intellectuall substance; for in their actions you may observe a greater constancie, and more certain law.

3. Wherefore leaving this opinion also, I come to a third; vvherein I find that vvind is nothing else but the flowing and reflovving, or motion of the aire, having no other materiall substance then the very thin aire it self. A third opinion.

To which it may be answvered, that this opinion, although better then the former, cannot float farre before it sink, and will therefore drown him in an errour vvho sticketh to it. For, as * *Aristotle* testifieth, vve fall into other absurdities upon the admittance of this tenet; (or else vve dissent from them vvho maintained it of old) imagining thus, that vvhen the aire is compelled to move, vve have vvind; vvhen it standeth still, it is thickened into a cloud; vvhen it raineth, it is condensed into vvater: all vvhich is very idle. Answer. * *Meteor. lib. 1. cap. 13.*

For furthermore, if the vvind vvere nothing else but the motion of the aire, then it vvould necessarily follovv that all and every aire moved should be vvind: but all and every moved aire is not vvind: therefore vvind is more then the moved aire. Wind is more then the motion of the aire.

Havenreuter, in his Comment upon *Aristotles* Meteors, proveth the assumption by this similitude. Even as every flovving vvater (saith he) although there be great plentie of it, cannot be called a river, but that onely vvhich ariseth from a fountain, or hath some certain beginning of fluxion: so also, not all and every aire, moved by one kind of means or other, can be called vvind, but that onely vvhich is as it vvere derived from some beginning or fountain. As for example, the aire vvhich is turned about by the heavens, is moved, yet it vvas never call-

ed wind. And again, in a bloudie bulleting fight, the aire is forced and stirred by the thundring sound of gunnes, and yet no wind is raised by it.

Besides, make wind to be nothing else but the moving of the aire, and then there can be no sufficient reason given why we should have greater plentie of winds at one time then at another; nor yet why they should blow from this point or corner, rather then from that. In which regard they also are confuted who suppose that the motion of the heavens moveth the winds: for if they were moved by the heavens, then the wind must blow alwayes one way, and never turn into a differing corner. But it followeth.

Another opinion.

Another opinion (and this is the last that I mean to mention) maintaineth that the winds do actually reside somewhere, and are shut up as in a prison, from whence they have sometimes libertie for a while, but at length they retire, & betake themselves to their dennes or cave again. This the Poets aimed at, when they* made *Æolus* the God of the winds, affirming that he kept them close, or let them loose at his pleasure. Whereupon *Homer* may be remembred, who brings in *Ulysses* speaking of the said *Æolus* thus:—*But he gave me* (saith he) *an hollow battle or leather bag, made of the skin of a nine-yeareold ox, in which he bound the blasts of the stormie tempestuous winds.* Or as * *Ovid* speaks of *Jupiter*, who had a comuanding power over all the other Gods;

Protinus Æoliis Aquilonem claudit in antris,
Emittitque Notum; madidis Notus evolat alis.

He forthwith shut the Northern wind
within Æolus den;
And loose he lets the Southern wind,
which flies with moistned pen.

Now this last opinion, although the Poets have turned it into a fiction, is not so bad as it seems to be. For take all

* The reason of which fiction was, because the clouds and mists rising about the seven Æolian Islands of which he was king, did alwayes portend great store of winds.

* *Metamor. lib. 1.*

all *cum grano salis*, as is said, and then it will appear that the wind is in some sort shut as within a den; and although not loosed by *Æolus*, yet by *Helios*: for *Helios* (which is the Sunne) doth indeed help to let it loose from out the bowels of the earth; drawing it into the aire, and above the ground; where we may feel it fanne our faces: sometimes churlishly, as if it were angry; sometimes gently, as if it were pleased. But of the severall kinds of blasts I shall speak afterwards; and therefore let them now rest untill I meet them.

Artic. 2.

What Wind is; upon what causes it dependeth; and how it is moved.

FRom the falsehood of the former opinions I come to declare the truth concerning the generation of winds; affirming that winds are generated by virtue of the Sunne, which causeth an hot and drie Exhalation to be evaporated, or aspired out of the earth. Unto which * some adde the power and operation of certain subterranean fires, which are as an antecedent cause, or *causa* πρωτοκινοῦν of the said windie exhalations: yet so, as being come near to the *superficies* of the earth, the Sunne provokes or stirres them up to come abroad, being therein *causa* πρωτοκαρκινοῦν or the moving cause: for the Sunne, as a porter, rarifies the *superficies* of the earth, and thereby openeth the pores and passages of it, through which the matter of wind comes forth, and flyeth sidelong over the face of the earth. And if at any time it happen that these exhalations can have no way made them, but are kept close prisoners; they then (by striving to get out) shake the earth which makes sad mortals alwayes fear, sometimes suffer, and not seldome wonder.

* *Lyd. de orig. font. cap. 3.*

The cause and effects of an earthquake.

Wherefore wind may be thus defined; namely that it

The definition of wind.

it is a certain plentie of hot and drie exhalations void of pinguid matter; which being partly aspired, and partly exhaled out of the earth, are driven about it, lest the aire should be corrupted.

* *Met. lib. 2. cap. 4.*

The matter then, we see, must be an exhalation. The quantitie of it must be copious: and so * *Aristotle* also witnesseth; affirming that in the generation of winds, there is a concourse of many exhalations, by little and little begetting a large masse of matter. The qualitie of which matter must be hot and drie, not mixed with any fattie substance: for if it were of a pinguid nature, then it would be enflamed like lightning; seeing lightning is an hot and drie exhalation and like unto this, save onely that it containeth great plentie of fattie matter, such as is not amongst the matter of wind.

Why it useth to rain when the wind is down.

Unto which adde this observation, that a mere earthie exhalation is never the whole matter of wind. For it draweth up many mixed vapours with it, as may be seen if we call to mind the storms and showers which often happen upon the allaying of a wind. For that part of the exhalation which is more moist and vaporous then the rest, is thickened and condensed into a rainie cloud, whilest the other is either drawn high into the upper Region, or else quite wasted dispersed and consumed.

The aire moved augments the wind.

Also know that the aire may increase and augment the exhalation after the motion is begun, and so the blast seemeth the greater. For the exhalation cannot but drive some part of the aire before it; then followeth other some after it, lest there should be *vacuum*.

And furthermore; in that I assent to a twofold efficient cause of wind, *viz.* the beams of the sunne attracting, and also some certain subterranean fires expelling, it is not without reason: for it evidently appeareth when the sunne hath either little or no force to draw up

up an exhalation, that then we have often great blasts; as those Northern winds in winter, and boisterous blasts, which happen in the night above our Horizon, when the sunne is under it. And unto this may be also added the secret influence of the Planets, who being in such or such a position do powerfully cause the earth to afford the aire great store of windie exhalations. As for example: the aspect of *Jupiter* (especially his conjunction) with the sunne, causeth great vvinds; producing also (as they may be placed) thunder and hail, as vvell as fair vveather. And as for *Mercury*, if he be aspected either vvith the sun, moon, or *Jupiter*, in *Gemini*, *Libra*, or *Aquarius*, it is evermore an infallible signe of vvind; unlesse there be some other generall and more povverfull influence to crosse it: for, as some have found it, generall influences may hinder those vvhich are particular.

But come novv to the motion of vvinds. I said before in their definition, that they vvere driven about the earth: and now it may be demanded how that motion is, and from vvhence it proceedeth.

How the winds are moved, and by what.

Their motion is a laterall or sidelong motion, caused through the aspiring of the exhalation and detrusion of the aire. For the exhalation is hot and drie, and dravvn up by the attractive povver of the sunne and other stars; vvhereupon, whilest it tendeth towards the middle Region of the aire, it is beaten dovvn again through the coldnesse and densitie of that place: and so, vvith a refracted and disjoynted force, it is driven hither and thither, and not suffered to fly up, nor vvilling to fall dovvn in respect of the great levitie in it: and having as it vvere devided the contention betvveen both (*viz.* the cold of the aire, and heat of the exhalation) neither overcoming other; it flyeth, not directly up, nor directly down, but laterally or obliquely: for it is* held to be a kind of Axiome, that those

* *Havvnrent. de Met. lib. 2. cap. 4.*

those things which are moved partly by force, and partly naturally, move themselves obliquely. By which reason lightning also, shooting starres, and the like Meteors, fly not directly down, nor up; but sidelong, as the wind: unlesse it be, that when they consist of Heterogenean parts, or parts of a divers kind (which some also attribute to the matter of winds) they then, through the strife of those their elevating and depressing parts, have a transverse motion as before.

Where the motion of the wind beginneth.

The place from whence this motion of the winds beginneth, is from above.

First, because the motion must necessailry begin from that place whither the exhalation is carried, as is seen in a vapour turned to rain.

Secondly, because all those things which have great force, there, where they have their greatest force, are not farre from their head or beginning of motion: but the winds have their greatest force in places up on high: therefore there they begin their motion, as *Havenreuter* proveth.

Thirdly, know that the rednesse of the skie, and all other visible signes of wind, do declare that some spirits or windie breathings are above, which in short time will be turned into blasts. For rednesse is a token of the adustion of exhalations in the aire: and the breaking of a circle about the moon from some one side or other, doth also shew the wind that is above, but not as yet come down unto us. The like also doth the swift motion of a single cloud in a clear skie when we feel no blasts below.

Besides, the hot and drie exhalation we know is carried first upright, and cannot therefore move obliquely untill it be encountered: wherefore the motion beginneth in the aire above, and not in places here below.

Particular winds.

And yet some imagine that certain particular winds, which

which are known but onely in some countreys, have their immediate motion from out the caverns of the earth, without any ascent into the skie: and this they prove, because the blast bloweth not farre, but is like the wind that cometh out of a pair of bellows, strong near the coming forth; but farre off, is not perceived.

Upon thought of which let it also be known, that the blowing of the wind sometimes one way and sometimes another way, dependeth upon no other cause then upon the situation of the place from whence the exhalation ariseth: and that it is sometimes stirred up one where, sometimes another where, proceedeth from the operation of the heavens. Why the wind bloweth not alwayes one way.

Also know, that winds diametrally opposite cannot blow together under one and the same Horizon with a continued blast. For if they be of equall strength, the one will be as powerfull as the other, and so not one give place to either. Or if their forces be unequall, then the one will over come the other, and so the conquered must upon necessity give place to the conquerour, and rather joyn unwilling forces with him, then be against him. Opposite winds.

Yet nevertheleſſe, if they be obliquely contrary, they may blow together: and by how much they are the more oblique, by so much they stirre up the greater strivings and tempestuous blasts. Oblique winds.

But if the exhalation be little, tenuous or thin, then we have onely a pleasant whisking wind, such as may be called *aura*, by which the aire is gently moved. Whisking winds.

Also know, that it is as possible to see the wind as the aire, their substances being too tenuous to be perceived; unlesse in a storm-wind, whose matter is an exhalation so thick that it darkens the aire; of which more shall be spoken afterwards; as also of whirlwinds, and the like. The matter of wind not obvious to the sight.

Last of all (as it is observed, and found by experience) the

Fulk.

the * generall profit of wind, by the unspeakable wisdome of the eternall God, is wonderfull great unto his creatures. For besides the alteration of the weather and change of seasons, from drinesse to rain, from rain to drinesse, from cold to heat, from heat to cold with frost and snow, which all are necessarie; there is yet an universall commoditie that riseth by the onely moving of the aire: which were it not continually moved and stirred, would soon putrifie, and being putrified would be a deadly poison and infection to all that breathe upon the earth. Wherefore, although we know not the particular place from whence it is raised, or where it is laid down, as * Christ meaneth, John the third: yet it teacheth the admired providence of the Almightie; insomuch that we may worthily crie out with the * Psalmist, and say, *Oh Lord how manifold are thy works! in wisdome thou hast made them all.*

*Iste locus vult, quod ventus sensibus deprehendi nequeat; & certus locus, ubi ventus flare incipiat & desinat, notarinon possit: vis enim ejus tantùm sentiatur. Havenrent.

* Psal. 104. 24.

Artic. 3.

Of the division of winds, & of their names and number.

THe Ancients (as * *Plinie* witnesseth) observed onely foure winds, East, West, North, and South: but the following ages added eight; making the whole number to be twelve: Foure whereof were principall, and called *Cardinall* winds; because they blew *à quatuor mundi cardinibus*, from the foure quarters of the world: The other eight they called *Laterall*; because they were (as it were) side-companions with the former foure.

The Cardinall were called by these names:
1. *Solanus, Subsolanus*, or the East wind.
2. *Notus, Auster*, or the South wind.
3. *Zephyrus, Favonius*, or the West wind.
4. *Aquilo, Septentrio*, or the North wind.

And again, the Laterall were called by these names that follow, and thus placed from the Cardinall.

As first, the East hath on the Southern side *Eurus*, or *Vulturnus*:

* *Plin. Lib. 2. cap. 47.*

Vulturnus : and on the Northern side *Cœcias*, or *Hellespontus*.

Secondly, the South wind hath on the East side *Phœnix* or *Euronotus* : and on the West side *Lybonotus*, or *Austro-Africus*; so called because it declineth from the South something towards Africa.

Thirdly, the West hath on the South side *Lybs*, or *Africus* ; so called from Lybia and Africa, the Regions from whence they proceed : and on the North side there is *Corus* or *Caurus*, called also* *Japix*, and *Olympias*; because it bloweth from the mountain *Olympus*.

*Origan. de effect. cap. 5.

Fourthly, the North hath on the West side *Cyrcius*, called also *Thrascias*, from θραττω, *converto*, because it useth to overturn many things with it. The Spaniards call it * *Gallicus*, because it is observed to blow from the coasts of new *Gallicia*, a Mexicanian province. And on the East side of the North point there is blustering *Boreas*, which is a bellowing wind, blowing with a loud hollow sound; and is therefore derived by *Aulus Gellius* in his * Attick nights, ἀπὸ τῆ βοᾶν καὶ ῥέειν. This division *Aristotle* also assenteth unto, making three winds in every quarter ; as in the second book of his Meteors, at the sixth chapter, may be seen.

* ibid.

* Lib. 2. cap. 22.

But the mariners make 20 more besides these : insomuch that the whole circumference of the Horizon is divided into two and thirtie equall parts, which they call and distinguish by severall names. And now observe in this division, that there be foure Cardinall winds, as before : foure middle winds, which are just in the middest between each Cardine : eight laterall, already mentioned : and sixteen collaterall : making, in the whole summe, the aforesaid number of two and thirtie.

The mariners reckon 32 winds.

Know therefore that the Cardinall, and middle winds, are properly the principall : the other being lesse principall and subordinate : divided therefore into

into laterall and collaterall; as hath been mentioned.

And as for those middle ones, they be such as we call South-west, South-east, North-west, and North-east winds. *Notolybicus* is the South-west wind; and *Notapeliotes* the South-east. *Borrholybicus* is the North-west wind; and *Borrhapeliotes* the North-east.

The rest, being sixteen in number, and collaterall, have their places one between each of the other: and so the circumference is divided into 32 parts, as before I shewed. Now the names of these sixteen are borrowed from those lateralls with whom they have the greatest neighbourhood, by *adding *Meso* and *Upo* to them. For *Meso* comes from μέσος, *medius*; because it is in the middle between a principall and a laterall wind: and *Upo* comes from ὑπὸ, *sub*; because it is as it were subject to that laterall wind next unto which it is placed, and from whence it taketh the name. As for example: *Eurus* is a laterall wind, a little from the East towards the South: and this hath on each side of it one collaterall. That which is between *Notapeliotes*, or the South-east wind and it, is called *Mes'eurus*, being middle between a principall and a laterall. But that which is between the East and it, is called *Up'eurus*, as being subject unto *Eurus*. And by observing this order you may give names unto all the rest: for *Meso* & *Upo* will compound them.

Yet nevertheless ordinarily the mariners name them thus. As *North, North and by West, North North West, North West & by North, North West, North West and by West, West North West, West and by North, West. West and by South, West South West, South West and by West, South West, South West and by South, South South West, South and by West, South. South and by East, South South East, South East and by South, South East, South. East & by East, East South East, East and by South, East East and by North, East North East, North East & by East,*

* Orig. Ephe. lib. de effect. cap. 6.

East, North East, North East and by North, North North East, North and by East. And then *North* again, as in the beginning.

Artic. 4.

The nature and qualitie of the winds.

IT may well appear by that which already hath been written concerning the generation of winds, that every wind in it self, or in respect of the matter causing it, is of an hot and drie qualitie. If therefore, blowing from any quarter, we find it other, it is by accident, and not through any inherent propertie: for winds do evermore participate of the nature of that place by which they passe: If by snowie mountains, then bring they with them the cold of those mountains; if by marshes, contagion; if by woods, their blast is broken; if by sandie plains, they are warm; if by moist watry places, they are wet.

And therefore for particular winds, the * *Panormi* in *Sicil* are extream hot; for before they pierce thither, they scoure through the plains of *Sicil*; and taking heat from the sands, they carrie it into the citie. The South wind at *Genua* is cold, because it passeth the sea, and taketh coldnesse thereof without touching the land before it arive. But the North wind which bloweth through *France* (saith* one) cometh from the sea, and taking some measure of heat by the saltnesse thereof, and finding no mountains covered with ice or snow in his passage, augmenteth his heat by passing, over the fields of *Normandie*, *Champaigne*, the isle of *France*, and other provinces, even to the hills of *Auvergne*: which being moderately heated by the South wind on the one side, and the North wind on the other, bringeth forth every where excellent pastures, and feedings for cattell and

*Winds blowing into the haven and famous citie of *Panormus*, or *Palermo* in *Sicilie*.

* In a book called a generall description of the world.

and sheep besides divers sorts of medicinable plants and most perfect simples. Also in * some places it is found that the Eastern wind moisteneth, and the Western wind bringeth drought: and in other some the Western moisteneth, and the other drieth. So that it is possible for one and the same wind to have a divers qualitie; although not in it self, yet by accident; as at the first was mentioned.

*Origen. Ephem. de effect. cap. 5.

Yet nevertheleſſe generally, and in most places, the North, with his associates, is cold and drie: the South, with his companions, is warm and moist: and the East, with his adherents, is farre more drie then the Western and his near neighbour winds.

Their qualities according as they commonly blow.

The reasons whereof may be. First, for the North, because it bloweth over many snowie mountains, and ariseth from a climate which hath little neighbourhood with the sunne, where the vapours be few, and the exhalations many that arise out of sundry islands by the way. Unto which also adde, because the exhalation passeth not farre before it come at us, that therefore it seldome bringeth rain: for the exhalation hath not time enough to spend the driest portion of it, so as the South wind doth; who passeth both over more waterie places, and also cometh further before we feel it.

Norths qualitie.

Secondly, for the South wind, it cometh over the Mediterranean sea, out of which the sunne begets abundance of waterie vapours, which mix themselves vvith the vvinds, causing them thereupon to be the blovvers in of rain. And as for their heat, it is because they blovv from the Equator vvhere heat is most predominant. Also knovv that a long and gentle South vvind may sometimes cause clearnesse and fair vveather, most commonly in the summer season, because it is by nature hot; and therefore blovving for a certain space, it so vvarmeth the aire, that the vapours vvhich othervvise vvould produce

Souths qualitie.

duce rain, are not suffered to be knit, but are attenuated and made so thin that they come to nothing; or being any thing, they prove onely barren clouds, affording little rain.

Easts qualitie.

Thirdly, the East wind is found to be the driest, because it cometh over a great continent of land lying towards the East, out of which many drie and earthie exhalations are drawn. In winter these winds are very cold and freezing; but in summer they are pleasantly warm, but healthfull: and if at any time they blow up rain (which is not ordinary) they then continue it by the space of a whole day; even as the like also sometimes happeneth from the North. The reason of which I take to be, because (perhaps) their lateralls, not being absolutely of the same qualitie, may arise together with them, and so bring rain; especially, if at the same time there be any other working in nature apt to moisten the skie with vapours. For it is affirmed that *Eurus* on the one side, and *Cœcias* on the other side, being two laterall winds pertinent to the East, do naturally raise clouds, and often turn them into rain; as do also *Upocœcias*, and *Mes'urus*, their collateralls. And so also *Cyrcius* may do, and *Borrholybicus*, being on the West side of the North, if either of them happen to arise and joyn, although but weakly, with the Northern blast. For in their own sole blowings they beget both snow and hail; either of which may fall down in drops of rain, when the mixture of qualities is found to be divers.

Why the East and North winds sometimes bring rain for a whole day.

West winds qualitie.

Fourthly, the Western wind is farre more moist then the East, because it passeth over the great ocean of the Atlantick sea, which must needs cast out many waterie and moist vapours, and they cannot but beget rain and showers. It is said also to be of a cold temper; but surely not of an absolute coldnesse: for it is found by experience that a direct *Zephyrus* or *Favonius*, with their

collateralls, *Mesocorus*, and *Up'africus*, are warm and pleasant, bringing sometimes hot showers, sometimes warm and clear weather. And therefore it is determined by certain Authours, that this wind may blow from a cold place, and yet bring heat. For although (in regard of the place over which it cometh) it be cold; yet in respect of the time when it usually bloweth, it is hot. Which* *Horace* also pointed at, saying,

Solvitur acris hyems gratâ vice veris & Favonî.
The winter sharp is loosed by the kind
Return of Spring, and of the Western wind.

* *Lib. 1. carm. od. 4.*

Or will you hear what others say? *Lemnius* (as *Origanus* relateth) affirmeth that this Western wind and his collateralls are of a changing temper. For although in the beginning of the Spring they be pleasing and gentle, and are found to recreate and cherish all things, seeing they are warmed by the moderate heat of the sunne, which makes them bring out the beautie of trees, and flowers, to the view of the world; and also causeth the bloud and good humours to appear, which in winter lay hid, as if they were not; casting away also the clouds of the mind, and begetting jocundnesse in the heart: yet nevertheless, Autumne ending, and the circuit of the yeare enclining to Winter, the aforesaid winds do blow unkindly, striking the sea and land with many a tempestuous blast, and unwished breathings.

The effects of a long-continuing wind, at certain seasons.

Moreover, this also may be observed, that the long continuance of the winds in any of these quarters, produceth these and the like effects.

As first, the East wind breedeth in cholerick bodies sharp fevers, raging madnesse, and perilous apostumations.

Secondly, the South wind breedeth corrupt humours, and in hot bodies cramps, giddinesse in the head, or the falling sicknesse, pestilence and cruel fevers, *viz.* when

when they blow long in the winter. This is held to be the most unwholesome wind.

Thirdly, the West wind breedeth phlegme in moist bodies; it procureth sleep, causeth apoplexies, and the like; and is never so churlish as when winter begins to approch.

And last of all, the North wind is good against the pestilence; and yet in cold bodies it breedeth plurisies, coughs, gouts, and (in some) squincies and sore throats: but yet of all winds it is held to be the wholesomest, although it be sharp in our winter moneths.

And this also note, that a continuall still summer is a signe of plague or earthquake: for a standing aire putrifieth, and an enclosed wind shaketh the ground. Asigne of plague and earthquake.

Artic. 5.

Of whirlwinds storm-winds, and fired whirlwinds.

A Whirlwind, is a vvind breaking out of a cloud, rovvling or vvinding round about: vvhich may be caused tvvo manner of vvayes.

First, vvhen tvvo or more contrary vvinds blovving from divers places, meet together.

Secondly, vvhen the matter of vvind, being an hot and drie exhalation, breaketh out of a cloud in divers parts of it, coming through the said holes vvith more then an ordinary violence. Or rather thus; Imagine a vvindie exhalation bursting out of a cloud, to be so driven, that by the vvay it happeneth to be pent betvveen tvvo clouds on either side of it; against vvhich, beating it self, and finding a repercussion, it is forced to turn and vvhirl about; even as vve see in the streets of cities, vvhen the vvind is beaten from tvvo vvalls, and meeteth in the middest of the street: for then there is made a little vvhirl-puff, vvhich vvhisking round about taketh up the dust or stravvs & blovveth them about, as doth the great

and ſearfull vvhirlvvind it ſelf; vvhich hath brought not onely amazement and terrour to mortalls but alſo much harm and miſchief. * *Plinie* is perſvvaded that vineger throvvn into one of theſe blaſts vvill break it, becauſe vineger is of a cold qualitie, and the exhalation hot: and therefore the one is as it vvere quelled and quenched by the other. The Greeks call a vvhirlvvind* τύφων; the Latiniſts *turbo*, or *vortex*.

* Lib. 2. cap. 28.

Typhon.
* ἀπὸ τῆ τύπτειν, quod eſt verberare.

Alſo a ſudden ſtorm-vvind is called by the Greeks, ἐκνεφίας; and by the Latines, *Procella*: and this happeneth, either vvhen a windie exhalation is throvvn dovvn, and encompaſſed in a thin courſe of clouds nevvly overcaſt, or elſe vvhen a windie exhalation is come to an extraordinary thickneſſe, and violently moved out of a cloud, to the darkening of the aire, vvithout inflamation or burning: for vvhen it burneth they call it πρηστήρ, ἀπὸ τοῦ πιμπρημι *incendo*, to burn, or ſet on fire. And this laſt is that vvhich we call a fired whirlvvind, being an exhaled blaſt ſet on fire either by an *Antiperiſtaſis*, by repercuſſion, or violent detruſion from the cloud vvherein it vvas encloſed; for it is made apt to be fired in regard that it conſiſteth of an exhalation which hath more fattie ſubſtance in it then other vvinds which burn not: And knovv that it differeth from lightning chiefly in theſe reſpects: firſt, becauſe lightning conſiſteth of a more ſubtil and thinne matter: for although a fired vvhirlvvind have a more thin ſpirit or blaſt then a whirlvvind, or a ſtormie vvind; yet it is not ſo tenuous as the ſpirit of *fulmen*, or lightning. Secondly, becauſe lightning is more flamie and leſſe breathie; the one having more vvindie ſpirits in it then the other.

Ecnephias.

Preſter.

The concluſion of this dayes work.

A conclusion repeating the ſum of this dayes work.

And thus at the laſt I have let you take a vievv vvith me of vvhat is pertinent to this dayes vvork. We have

have seen (good Reader) the framing of the out-spread Firmament, with the lifting up of the waters over it: we have examined the nature of the heavens, and scarce found them of a quint-essence: we have searched what heavens they were which Moses meant, when he said, *God called the firmament Heavens.* From thence we proceeded to the severall regions of the aire examining their temperatures and qualities; and thereupon we fell into an ample consideration of such appearances as are usually seen in any of those Regions; discoursing at large both of fierie, waterie, and aierie Meteors.

And this being all which this day affordeth, I may here make an end, and say

That eve and morn conclude the second day,
And in his work God findeth no decay.

CHAP. VI.

Wherein is contained a survey of the third dayes work; together with such things as are pertinent to it.

Sect. 1.

Shewing into how many main parts the businesse of this day may be distinguished.

BEing come from the second to the third dayes work, I cannot say with * *Virgil* now, *Ille ego qui quondã gracili modulatus avena:* But rather on the contrary, *Ille ego qui superis volitabam nuper in oris,*

* Æneid. lib. 1.

Nunc humilis sequor arva soli, nunc tenuia presso
Ore loquor ——

Because in the former day, the work belonging to it, compelled my winged pen to soar aloft, not suffering her to come unto the ground till now. For she was to walk above the Firmament, and view the out-spread buildings laid in the flowing waters: then through the Regions of the liquid aire she was to trace a path; which finished, she must be content to frame her self unto a lower pitch, before any leave be granted to ascend again. And indeed I think it is what both she and I desired; for we were long detained there.

And now, having both of us obtained our wishes, we find that Gods inspired pen-man, holy Moses, so setteth down the admired work of his Almighty maker, done

done on this third day of the world, that into three main parts it may be severed: for by viewing the words which he hath written of it, the same will be apparent.

And God (saith he) *said, Let the waters under the heaven be gathered together unto one place, and let the drie-land appear: and it was so.*

And God called the drie-land Earth, & the gathering together of the waters called he Seas: and God saw that it was good.

And God said, Let the earth bring forth grasse, the herb yielding seed, and the fruit-tree yielding fruit after his kind, whose seed is in it self, upon the earth: and it was so.

And the earth brought forth grasse, and herb yielding seed after his kind: and the tree yielding fruit, whose seed was in it self, after his kind: and God saw that it was good.

And the evening and the morning were the third day.

This is the summe of all; which (as before was said) consisteth of three severall parts.

The first whereof concerneth the *gathering together of the waters*, in these words, *And God said, Let the waters under heaven be gathered together unto one place.*

The second concerneth the *drying of the ground*, in these words, *And let the drie-land appear.*

The third is pertinent to the *sprouting and springing of the earth*, in these words, *And God said, Let the earth bring forth grasse, the herb yielding seed, and the fruit-tree yielding fruit after his kind, &c.*

All which in their orders are severally to be discussed, together with such other things as are pertinent to the said division.

And concerning the two first, observe that God bestowes as it were sirnames on them; calling the gathering together of the waters, Seas: and the drie-land he calleth Earth.

Sect. 2.

Of the gathering together of the waters, which God called Seas.

WAter and earth are the two lowest elements; and this vvas that day which brought them to perfection: for untill now they were confused; because their matter, although not quite void of form, received at this time a better form of due distinction and more comely ornament. The informitie was expressed before, when Moses said that the earth was void and invisible, because covered vvith waters: but the formitie is then expected and declared when the waters are gathered, and the drie-land made apparent.

It is a wonder (sure) to think what a confused tyrannie the waters made by their effusion; for they did rather tyrannize then orderly subdue or govern this inferiour mirie masse: wherefore it seemed good to the Almightie maker, first to divorce one from the other, before he gave them leave so to be joyned each to other, that both together might make one globie bodie; which (according to the best approved Writers) is one and twentie thousand and six hundred miles in compasse.

But concerning this gathering together of the waters, there arise certain questions, which may not altogether be forgotten.

Questions concerning the waters which are said to be gathered together.

As first, it is enquired, How the waters were gathered together.

Seeondly, How it can be said that they were gathered to one place; seeing there be many seas, lakes, rivers, and fountains that are farre asunder.

Thirdly, Whether they be higher then the earth.

Fourthly, Whether there be more water then earth.

Fifthly, Whether the earth be founded upon the waters.

Sixthly,

Sixthly, Why the seas be salt, and rivers fresh.

Seventhly and lastly, What causeth an ebbing and flowing in the sea, rather then in rivers.

Concerning the first of these questions, those who think that there be no *Antipodes*, supposed that the waters did runne together and cover the other part of the earth which is opposite to this where we dwell. But the experience of skilfull navigatours and famous travellers, yea and reason it self, doth crie against it.

Quest. 1. Which sheweth how the waters were gathered together.

Others imagine that it was some mighty wind which dried them up; or that the fervent heat of the sunne effected it. But both think amisse; because the drie-land (saith one) appearing all at once, was so prepared by a greater power then either of the wind or sunne, which could not work it at once, nor scarcely in a long continuance of time: neither was the sunne made untill the next day after. *Dixit igitur & factum est*; he spake the word onely, and by the power of that word it was done. For the efficient cause of the sea was the onely word of God; the materiall was the waters; the formall was their gathering together; and the finall partly was, that the drie-land might appear. *Ezekiels* * wheels were one within the compasse of another: and so was the earth, water, and aire, before the powerfull word of God commanded this their gathering: the earth within the water; the vvater vvithin the aire; and the aire vvithin the concave of the Firmament. Which if they had all for ever so remained, and man made as he is, the vvorld had been no house for him to dvvell in, neither had it been a vvork so full of never ended admiration as novv it is.

*Ezek. 1. 16.

Perhaps the pores and holes of the ground vvere full before this gathering; yet nevertheless their bodies must be vvilling to be made the beds for more. That they vvere full, it proceedeth from the nature of the vvater, falling

falling downwards and filling them. That being full, they are yet made capable of more, might proceed both from a more close composure of the not hollow parts of the earth, and also by making these waters thicker then they were before. For whilest the not hollow parts were made more solid, the hollow could not choose but be * enlarged: and whilest the thin and vapourie waters were better thickened and condensed, the outface of the ground could not be obscured, but shew it self as one released from out a waterie prison. Some adde unto this their heaping together in the high and wide seas, whereby it cometh to passe that they flow to and fro at flouds and ebbes, and do often force out water-springs from out the highest mountains: which last, whether it be so or no, shall be examined afterwards.

* Job 38. 10.

Quest. 2. Shewing how they were gathered to one place.

The next question was, how it can be said that they were gathered to one place; seeing there be many seas, lakes, rivers and fountains that are farre asunder.

It was a strange conceit of him who thought that this one place unto which the waters were gathered, was separate so from the earth, that the waters by themselves should make a globe, and have their proper centre; for leaving to descend towards the centre of the earth, they were gathered to a centre of their own, and so the drie-land appeared.

But this opinion is very false, and worthy to be reckoned amongst absurdities: for (as the * Prophet Esay writeth) the Lord is said to *sit upon the circle of the earth.* Now experience sheweth that it is not the earth alone, but the earth and sea together that make one globe or circle.

* Esay 40. 22.

This one place then whither the waters were gathered, was not a place separated from the earth, being in the aire or elsewhere, but was in the very body of the earth it self. Neither was it one place strictly taken, as if it meant

meant one point or angle of the earth: or, as if there were no *Antipodes*, half the earth under us was to be covered with water.

But rather it is called one place, because in the whole globe of the earth, every place is either water or land: or (if not so) because there is but one body of all the waters that are: for every part of the water is joyned unto the whole as it were with arms, and legs, and veins diversly dilated and stretched out. So that either under the earth, or above the earth, all the waters are joyned together: which also the wise man witnesseth, Eccles. 1. 7.

But haply some may think, because this gathering together of the waters is called Seas, that therefore the one place, unto which they were gathered, is not to be understood of every collection or gathering of water, but onely of the sea.

Well, be it so. And if this rather then the other be the meaning of Moses his words, it may be answered, that although the sea be divers in name, yet all seas are so continued together, that one sea is perpetually joyned with another: and thereupon the name given, is not *Sea*, but *Seas*; as in the text is manifest.

Yea and hereupon it also is, that Geographers make these waters come under a fourefold division. For they either call this gathered water, *Oceanus*, *Mare*, *Fretum*, or *Sinus*.

1. *Oceanus*, the ocean, is that generall collection of all waters, which environeth the world on every side.

2. *Mare*, the sea, is a part of the ocean, to which we cannot come but through some strait.

3. *Fretum*, a strait, is a part of the ocean restrained within narrow bounds, and opening a way to the sea.

4. *Sinus*, a creek, or bay, is a sea contained within a crooked shore, thrusting out (as it were) two arms to embrace the lovely presence of it.

Object.

Object. But perhaps you will say that the Caspian sea is a sea by it self, and therefore all seas joyn not the one unto the other.

Answ. To which it is answered, that this sea is either as a * lake in respect of the contiguous or joyning seas; or else it was no sea in the beginning of the world, but began onely at the ceasing of the Floud, & was caused by the waters coming down from the Caspian hills, settling themselves in those declive and bottomie places where the said sea is. *Plinie* and *Solinus* are perswaded that it joyneth it self unto other seas by running into the Scythian or Northern ocean through some occult passages under ground; which is not improbable. But howsoever, this we are sure of, that the river *Volga* is joyned to it, being as another sea, and having no lesse then seventie mouthes to emptie it self: which river is also joyned to the river *Don*, and that hath great acquaintance with the Euxine sea. Besides, *Volga* is not a stranger to* other waters which fall either into the Scythian or Baltick ocean: insomuch that it may be said, this Caspian sea is tied (as it were) with certain strings to * three other seas: and so, not onely all vvaters are made one bodie, like as before I shevved, but (if this gathering must needs be referred to the seas) even all seas also shake hands, and by one means or other mutually embrace one the other.

* Dr Fulk in his Met. *lib.* 4. saith that some lakes are so great that they bear the names of seas: among which he reckoneth this Caspian sea.

* As *Duina major* and *Duina minor* called also *Onega*. Look into the maps of Russia or Muscovia.

* *Vid.* the Euxine, Baltick, and Scythian or Northern seas.

Quest. 3. Shewing whether the waters be higher then the earth.

A third question is, Whether the waters be higher then the earth. Concerning vvhich there be Authours on both sides; some affirming, some denying.

That they be higher then the earth, it is thus affirmed.

First, because vvater is a bodie not so heavie as earth.

Secondly, it is observed by sailers, that their ships flie faster to the shore then from it; vvhereof no reason can be given, but the height of the vvater above the land.

Thirdly, to such as stand on the shore, the sea seemeth to

to swell into the form of an hill, till it put a bound to their sight.

Fourthly, it is * written of *Sesostris* King of Egypt, and after him of *Darius* King of Persia, that they would have cut the earth and joyned *Nilus* and the Red sea together; but finding the Red sea higher then the land of Egypt, they gave over their enterprise, left the whole countrey should be drowned.

* *Herodot. in Euterpe & in lib. sequent. Plin. lib. 6. cap. 33*

Fifthly, the arising of springs out of the highest mountains doth declare it, because the water cannot be forced higher then the head of the fountain opposite to it. As for example. Like as we see a spring that riseth in an hill, conveyed in lead unto a lower ground, will force his waters to ascend unto the height it beareth at the fountain: even so the waters which stand above the mountains, do force out springs of water, by necessary and naturall cause, out of the highest mountains.

Sixthly, the * Psalmist doth witnesse the same, affirming moreover that God Almighty *hath made the waters to stand on an heap, and hath set them a bound which they shall not passe, nor turn again to cover the earth.* And Jer. 5. 22. *Fear ye not me, saith the Lord? will ye not tremble at my presence, which have placed the sand for the bound of the sea, by a perpetuall decree that it cannot passe it; and though the waves thereof rage, yet can they not prevail?* Thus on the one side.

Psal. 104.

But notwithstanding all this, methinks the other part (yet choose which you will) is most probable.

For first the water indeed is a bodie not so heavie as earth, yet heavie enough to descend, not being of an aspiring nature, but presseth eagerly towards the same centre that a stone or any part of the earth coveteth: It cannot therefore possibly be above the earth, although not so heavie as earth, unlesse there were no hollow places in the ground to receive it. But God Almighty, in gathering

gathering them, provided lodgings for them, left they should turn again and cover the earth: which also is insinuated by the Hebrew word *Kava* signifying to congregate or gather together; from whence the Latine word *Cavus*, hollow, may seem to be derived. Besides, should it be alledged that the hollow places could not be deep enough to receive them, what were this but to curtall the earths Diameter or thicknesse? for suppose the waters stood above the hills before they were gathered to one place; yet know that even the Semidiameter of the earth is deeper by no few miles then the highest hill. Suppose you could imagine an hill to be above a thousand miles high (which is impossible) yet the earths Semidiameter would be two thousand, foure hundred, and above 36 miles deeper then that height. As for example; if the earth be 21600 miles in compasse, then the Diameter will be $6872\frac{8}{11}$ miles; and if the Diameter be $6872\frac{8}{11}$ miles, then the Semidiameter must be half so much, viz. $3436\frac{4}{11}$ miles.

Secondly, suppose it be observed by sailers that their ships sly faster to the shore then from it: this proveth not the sea higher then the land. For know that it is no wonder to see a ship sail more speedily homewards then outwards; because when it approcheth to the shore, it cometh with a continued motion which makes it the swifter: but when it goeth from the shore, it doth but begin its motion, and is therefore slower then before. This (if need were) might be proved by many plain and familiar examples.

Thirdly, suppose that the sea seemeth, to such as stand on the shore, to swell higher and higher, till it put a bound to the sight; this rather proveth the sphericall roundnesse of the earth and sea, then any thing else; shewing that both together make one globie bodie. Which, why it is perceived rather in the water then the land,

land, this may be a reason; namely because the sea, being a plain and liquid element, and spacious enough, doth better shew it then the earth, which hindereth our full view by reason of many woods, trees, and other fixed obstacles, which the sight meeteth and encountreth by the way.

Fourthly, although *Sesostris* K. of Egypt, and after him *Darius* K. of Persia, dared not to make a cut out of the Red sea into *Nilus*, for fear of drowning the countrey, because they supposed that the sea lay three cubits higher then the land of Egypt: yet (as some report; how truly, I cannot tell) the *Ptolomies*, kings of Egypt, effected the work without any danger of inundation. But suppose they had not done it, or suppose it were granted that the Red sea were higher then the plains of Egypt; yet it followeth not (unlesse one swallow can make a summer) that the sea in generall is every where higher then the earth. As for the height of the Red sea above the land near adjoyning to it, * *Aristotle* seemeth to give a reason, perswading himself that there is such a change in the universe, as that that which hath been sea is sometimes land, and that which hath been land is sometimes sea: and so he thinketh of those low grounds near the Red sea, that they have been gained from the sea. The like we may also think of many places in the Netherlands, and of that small part of sea which is between *Dover* and *Callis*; as *Verstegan* proveth in his restitution of decayed antiquities, cap. 4. pag. 97.

* *Met. lib. 1. cap. 14.*

Fifthly, suppose that certain springs arise out of the highest mountains, must the sea therefore needs be higher then those mountains? surely I think not. For albeit I be not of *Aristotles* mind, nor of their opinions who do not derive the rivers from the seas, nor make subscription unto them who give a sucking and an attractive power to the veins of the earth; yet I find it as a thing possible,

possible, although that part of the sea which lieth opposite to the head of the fountain, or to the place where the water first breaketh out, be lower then the ground, that the said water may nevertheless easily ascend, and not break forth untill it find a place convenient. Now this ascent is caused by the sea, which, seeing it is a vast bodie, is very ponderous and heavie, and cannot be thrust back by the water at the head of the fountain opposite to it, but rather it doth potently and strenuously croud on the said water through the hollow ports and passages of the earth, untill at the last it springeth forth.

Were it so indeed that there were an equall weight of both waters, (I mean of the sea-water driving, and of the spring-water arising) then the ascent of the one could not be higher then the *superficies* of the other: but seeing the weights are unequall (which * *Cardan* did not well consider) the stronger and heavier must needs drive on the weaker and lighter, causing it sometimes to ascend even above it self.

* *De subtil. lib. 3. pag. 123.*

Sixthly and lastly, that which the Psalmist witnesseth concerning the standing of the waters on an heap, I take to be nothing else but the gathering of them to one place, so and in such a manner, that their coming together may be called Seas, and their forsaking the land be called Earth: for if one place of Scripture be expounded by another, it will appear to be even so. First, because it is said, Ecclesiastes 1.7. *All the rivers go into the sea:* but the water hath his naturall course downwards, and cannot be forced up, but by the heavier weight; as hath been shewed. Secondly, because it is said Psal. 107. 23. *They go down to the sea in ships: down,* as to the lower place; and not *up,* as to the higher. And for that alledged out of Jeremy, *viz. Fear ye not me &c.* The Prophet speaks there of no miraculous work against nature, but of the ordinary providence of God by naturall means,

means, keeping back and bounding the sea; as at the 24. verse is manifest. For there he gives the like instance of the rain; which we know is not wrought by miracle, and yet it sheweth the watchfull providence of God, preserving the world by the naturall course of the creatures.

Judge then if they be not mistaken, who would have the sea higher then the earth.

Quest. 4. Shewing whether there be more water then earth.

The fourth question is, Whether there be more water then earth.

Now here I am perswaded that the answer may be either double or doubtfull. For if we have respect to the known parts of the world, then I think there may be more sea then land. But if we have respect to all, both known and unknown, then perhaps there may be as much land as sea: For we see that in the maps of the world, the Southern parts are not known, and therefore they write *Terra Australis nondum cognita*: which whether it be sea or land, is uncertain. *Pareus*, upon Genesis, is perswaded that the land is more then the sea, alledging a proof out of * Esdras, where it is said that when God commanded the waters to be gathered, he gathered them into the seventh part of the earth, and dried up the six other parts: which although it be Apocryphall in respect of the authoritie of the book, yet (saith he) it serves to shew that the waters are not more then the earth.

* 2. Esdr. 6. 42.

Quest. 5. Shewing upon what the earth is founded.

The next question is, Whether the earth be founded upon the waters.

The Psalmist seemeth to affirm it, Psal. 24. verse 2. For (according to the common reading) it is, *He hath founded it upon the seas, and prepared it upon the flouds.*

To which it is answered, that if the earth (as it is) be the receptacle for the waters, or holdeth the waters in the concavities of it, how can it be that the waters

are instead of a foundation? Job saith, *He hangeth the earth upon nothing*, chap. 26. 7. If upon nothing, then not upon the waters, for they are something. And again, even the Psalmist also saith, *The foundation of the earth cannot be moved*, Psal. 104. 5. If not moved, then not founded upon the waters, for they are moveable; flitting to and fro, sometimes this way sometimes that way, and never standing still.

Wherefore when the Psalmist saith, *The earth is founded upon the seas*, he meaneth that it is so placed above them, as that it is made fit to be a place for habitation: And so Expositours understand the Hebrew word *Gnal*; *viz.* in such a sense that it doth signifie *above*, and not *upon*: In which sense, the waters that it sustaineth do not hold it, but are holden by it: for they are in it *tanquam in utre*, as in a certain vessel; and do alwayes strive to come as near the centre as is possible.

For conclusion then of this question, thus much must be known; namely, that when God made the world, he made * all things in number, weight, and measure: insomuch that the earth (although it be hanged upon * nothing) is so equally poysed on every side, that it cannot but be firmly upheld; and no more fall then the sun out of the firmament, or the starres out of heaven. For hath not man sometimes shewed an admired portion of skill in this or that rare work which he hath wrought, and effected by nothing else but onely the deep and profound rules of art? yes surely hath he. And if man be so potent as to make his skill admired, yea and by those who are men as well as he; what may we think of the Maker of men, but that his art is much more then commendable, and his wisdome much more then matchlesse; so that the world, and all the parts thereof, afford nothing but matter of wonder? It is therefore an acclamation which deserves impression in the hearts of us mortall

* Wisd. 11. 20.
* Job 26. 7.

tall men; *Oh God how manifold are thy works! in wisdome thou hast made them all.* And being made, his providence doth sustain them.

The sixth question is concerning the saltnesse of the sea, and freshnesse of rivers.

Quest. 6. Shewing why the sea is salt, and rivers fresh.

Aristotle, in his second book of Meteors, at the 3. chapter, setteth down (besides his own) three opinions concerning this saltnesse. One whereof is, that the waters overflowing the earth in the beginning of the world, were so dried up by the heat of the sunne, that not onely the drie-land appeared, but all those waters which remained (being the sea) were so sucked and robbed of their sweet savour, that they could not but be salt.

Another opinion agreeing to that of *Pluto*, who generating the sea *ex tartaro*, or from great and deep gulfs in the earth, or (with others) drawing it through the bowels of the earth, gave occasion to think that the water in it self was sweet, and yet became salt by reason of the divers savours that it met withall in the ground or veins of the earth. Which cause, by the* interpreters of *Aristotle*, is also attributed to *Anaxagoras* & *Metrodorus*, as being pleasing to them. For as water strained through ashes is endued with a certain tart and salt kind of acrimonie; so the sea is made salt by some such kind of earth through which it passeth: which is as others have also thought, who suppose that the saltnesse of Mineralls doth much conduce to this purpose.

*Havenr. in Arist. de Met. lib. 2. cap. 1.

A third was the opinion of *Empedocles*, who affirmed that the sea was but the sweat of the earth, being (as it were) rosted by the heat of the sunne; and was therefore salt, because all sweat is of such a savour.

Now these three opinions *Aristotle* endeavoured to confute by severall reasons, shewing other causes of the seas saltnesse. And indeed had it been so with him that he

he could have repaired unto Moses, then had the first opinion been struck dead more easily then it was; because Moses would have told him that the drying of the earth, and gathering of the waters, were one day elder then either sunne or starres.

And for the second, if it be taken in a qualified sense, it is not much amisse: for although *Aristotle* saith that if it be a true opinion, then rivers would be salt as well as seas, because they runne in the veins of the earth; yet know that all and every vein is not of one and the same temper; as is apparent by the differing qualitie of springing waters.

As for the third, it seemeth rather a ridiculous then philosophicall opinion: for sweat is but a small part of that humour contained in any bodie that yieldeth sweat; but the sea is not the smallest part of humour in the bodie of the earth: therefore it neither causeth the sea, nor saltnesse of it.

But beside all these, there are other opinions also. Wherefore some again have attributed the cause to adust vapours, partly let fall on the sea, and partly raised from it to the brinks and face thereof; Others to the motion of the sea; Some to under-earth, or rather* under-sea fires, of a bituminous nature, causing both the motion and saltnes also; Others to an hot and drie aspiration exhaled out of the * earth, and mixed with the water of the sea.

* *Lyd. de orig. font. cap. 8, 9.*

*VR. under the water.

But that which followeth seemeth absolutely the best, namely that it is effected by the working of the sunne, which draweth out the purer and finer parts, leaving the grosser and more base behind; even as in this little world of our bodies, the purest part of our nourishment being employed in and on the bodie, the urine and other excrements remaining do retain a perfect saltnesse. Unto which opinion they also assent, who affirm that the saltnesse is radically or originally in

in the matter of the water; vvhich must be so understood as the vvater hath in it an earthy kind of substance of a drying nature: which (as I suppose) vvas not first in the matter of the vvaters before they vvere gathered unto this one place where novv they are; because, as is reported and vvritten, there be salt mines in sundry places, as in a certain hill in *Barbary*, out of vvhich perfect salt is digged, and used for salt after it is made clean and beaten small. All vvhich doth greatly commend the providence and vvisdome of God: For it is not unlike but that the sea vvas by his vvisdome and providence gathered into such salt valleys of the earth, as vvere othervvise barren and unfruitfull: vvith vvhich substance, the gathered water being mixed, must needs partake both of an earthy matter, and also of a salt savour; yet so, as this salt savour canot be dravvn out, and sensibly perceived in the mixture of many svveet humours joyned vvith it, vvithout a separation first made by the heat of the sunne, of the thinner parts from the thicker: And so the sunne is a disponent, though not a productive cause of this saltnesse,

The sea made salt by the substance of the ground: that is my opinion.

Novv this opinion may be strengthened by many reasons.

First, because sea-vvater, vvhen it is boyled, doth evaporate a devvie or waterie humour, which being collected and kept together, hath a svveet tast or savour.

Secondly, because vapours dravvn from the sea and turned into rain, are void of saltnesse.

Thirdly, because the sea in summer, and tovvards the South (as *Aristotle* affirmeth) is more salt then elsevvhere; vvhich cometh to passe in that the sunne, at that time and place, dravveth avvay more of the svveet humours then at other times.

Fourthly, because the sea is fresher tovvards the bottome, then at the top; as some have found by using practises to experience it.

Fifthly, because (as *Aristotle* again testify eth) if an emptie vessel sealed up vvith vvax, be by some means or other caused to sink into the sea, and there let lie for a certain space, it will at the last be filled with very fresh and svveet vvater, issuing in through the insensible small pores of the vvax : for by this manner of passing into the vessel, the thin is strained from the thick : yea by this means, the earthy and adust part, vvhich carrieth the saltnesse in it, is excluded, vvhilest the other is admitted. For in every salt savour, tvvo things are required; *viz.* an adustion, and an earthie kind of substance of a drying nature : both vvhich are found in the sea. For (according to the testimonie of Physicians) sea-water doth heat and drie more then other vvaters, and is also more ponderous or heavie ; yea and it doth more easily sustain a heavy burthen, giving it lesse leave to sink then the fresh silver-seeming streams.

And thus vve see hovv the sea comes to be salt. It follovveth to shew vvhy rivers be not salt, as vvell as seas.

Of rivers ; and from whence they proceed.

Novv for the better explaining of this, the first thing considerable vvill be concerning the originall of fountains and rivers.

Aristotle handled them amongst Meteors of a vvatry kind, because he supposed that there vvas the same originall of rivers within the earth, vvhich vvas of watry Meteors in the aire above the earth. For if this aire (saith he) coming near to the nature of a vapour, is by cold turned into vvater; then the aire which is in the caverns of the earth, may be, by the same cause, condensed into vvater also. According to vvhich grounds vve cannot but make this the originall of fountains and rivers; namely, that they are ingendred in the hollow concavities of the earth, and derive both their birth and continuall sustenance from the aire ; vvhich piercing the open chinks or *chasmata* of the earth, and congealed by the

Arist. de Met. lib. 1. cap 13.

the cold of those places, dissolveth into water (as we see the aire in winter nights to be melted into a pearlie dew, sticking on our glasse windows) and being grown to some quantitie, it will either find a way, or make a way, to vent its superfluitie. All which agreeth very well to the nature of the aire, which seeing it is hot and moist, the heat being gone it is thickened, and so easily turned into water.

And as for a continuall running of rivers caused by this water, it is (saith *Aristotle*) by a perpetuall succession of new aire.

But to this opinion we may not absolutely make subscription; for although aire may be thus converted into water, yet the sole matter of rivers cannot come from hence: it may haply be an helping cause, but not a prime, or principall cause. For first, sith the aire is a thin subtil bodie, there is necessarily required an abundance of aire to make but a little quantitie of water; insomuch that it is not doubted by some without cause, whether the dennes and hollow places of the earth be vast enough to receive so much aire as can make water enough to runne along, untill it break out into a river or spring. Secondly, there be many fountains which have (as it were) a kind of ebbing and flowing at certain direct and set times, which they keep as constantly as the very sea it self. As for example, among other strange rivers, * *Plinie* makes mention of *Dodon* Jupiters fountain, which evermore decreaseth from midnight untill noon; thence it increaseth untill midnight again. And in the island *Delos*, the fountain of *Inopus* (as he also affirmeth) keeps his course with *Nilus*. Also he makes mention of a little island in the sea over against the river *Timavus* or *Brenta* in Italie, having certain fountains in it which increase and decrease, according to the ebbing and flowing of the vast bodie of *Amphitrite* or the sea.

* Lib. 2. cap. 103.

Wherefore the wise man *Siracides* thought more truly (Ecclus. 40.11.) concerning these things; affirming that *all things which are of the earth shall turn to the earth again: and that which is of the waters doth turn again into the sea.* Which saying of his I do not say is much strengthened, but absolutely confirmed by one more authentick then it self; namely by that of Solomon, Eccles. 1. 7. where it is witnessed that *all rivers run into the sea, yet the sea is not full: unto the place from whence the rivers come, thither they return again.* Which testimonie makes it plain that the sea is the principall cause of all rivers: and if therefore *Aristotles* *aeriall vapours have any thing to do in this generation, it is as much as nothing: yet that which they are able to do, I imagine they perform, joyning themselves with the currents which come from the sea; and so they runne together in the veins of the earth, either untill free leave be given them to come abroad, or that (like *Hannibal* in the Alps) they work themselves a way.

*Aeriall vapours are partly a cause of springs.

Now in this there is little or no difference between *Solomon* and *Plato*, together with the ancient Philosophers before him, although *Aristotle* dissenteth. For that which *Solomon* calleth the sea, * *Plato* calleth the great * gulf of the earth; saying, Εἰς τοῦτο τὸ χάσμα συρρέουσί τε πάντες οἱ ποταμοὶ, κ᾽ ἐκ τούτου πάλιν πάντες ἐκρέουσιν. *id est, Ad illum hiatum & omnes fluvii confluunt, & ex hoc vicissim omnes effluunt:* that is, *Into this gulf all rivers do both flow or assemble themselves, & also by their courses come or flow out again.*

*Goclen. Disput. Phys. cap. 39. ex Plat. in Phæd.

* Plato did but expresse Moses meaning, Gen. 7. 11. in other words.

How springs come to be fresh, seeing the sea is salt.

But what need more words? It is without controversie that rivers have their first originall from the sea: that is the fountain-head from whence all fountains have their heads. Neither can the saltnesse of the sea, and freshnesse of rivers, stop this current.

For concerning springs, it is true indeed that they are fresh;

fresh; and this freshnesse, notwithstanding their salt originall, may be ascribed to percolation and straining through the narrow spungie passages of the earth, which makes them leave behind (as an exacted toll) the colour, thicknesse, and saltnesse. So that you see, sea-water (though in it self of a salt and brackish savour) by passing through divers windings and turnings of the earth, is deprived of all unpleasantnesse: and by how much the spring-heads of rivers are * remote from the sea, by so much are their waters affected with a delightfull relish: yea and why they ascend up to the highest mountains, already hath been declared. Unto which may be added, that they come not with a direct course from the sea unto those hills; neither do they ascend directly upwards on the sudden, but by degrees: and so, winding themselves through many crooked passages and turnings, they do (as it were) scrue themselves up to the convenientest place of breaking out; and cannot go back, because the sea is a farre heavier bodie then the vein that cometh from it; even as the bloud in our veins is nothing in proportion to the liver, from whence each vein of bloud hath its first beginning.

* *Putei prope mare salsi, longius, minus; procul, nihil. Scal. exercitat. 50.*

But I draw towards a conclusion, adding in the last place, that of waters (be they seas or rivers) we have a threefold use and benefit.

The benefit and use of waters.

First, that out of them drink may be afforded to man and beast; as it is Psal. 104. 11. *They give drink to every beast of the field: the wild asses quench their thirst, &c.*

Secondly, that running through the earth, as bloud through the bodie, by interlacing it, and sometimes overwhelming it, they make the earth able to produce those fruits which are necessary for the life of man: which benefit of overflowing, so fattens the whole land of Egypt, that the Priests of that countrey did thereupon ascribe the beginning of time, or of every thing that now

now is, to that time of the yeare when their *Nilus* overflowed, or when it first began to lift up it self above the banks, and diffuse an ample portion of manuring bountie into the lap of the land: which is as good to them as if *Jupiter* should descend in a golden shower. And for other places, where there be no such luckie floods, there it is found that these bounteous watrie bodies yielding vapours, do purchase for them such dropping showers of rain, that *the valleys stand so thick with corn, that they laugh and sing*: and therefore these are great benefits challenging most humble thanks; as it is Psal. 107.

The third is, that they can quell the rage of the hottest element, and keep our mansions from cinders, or a flamie conversion into ashes.

The fourth is, that they yield us an easinesse and speedinesse of conduct and traffick, by which each place partaketh of the blessings of every place.

Yea these, and many more, are the benefits of water, without which the life of man could not be sustained. But here I contract my sails, and end this question: for by coming on the shore, I shall the better view that which remaineth concerning this liquid element. Wherefore it followeth.

Quest. 7. Wherein is shewed the cause of the ebbing and flowing of the sea.

The next and last question propounded, was concerning the fluxion and refluxion of the sea; wherein I purpose (as near as I can) to shew, both why seas have that alternate motion, as also why such murmuring brooks and rivers, as do not ebbe and flow, are destitute of the foresaid courses.

The motion of the sea is either naturall, or violent. The first it performeth on its own accord; the other it doth not, but by some externall force compelling it.

The first, being a naturall motion, is such as is in every other water; namely that all waters do evermore flow into the lowest place, because they have an heavinesse or

or ponderositie in them. And thus the ocean naturally floweth from the North, where it is highest, unto the South as the lower place: for * there in regard of the great cold, the waters are not onely kept from drying up, but also increased, whilest much aire is turned into water: whereas in the South, by reason of great heat, they are alwayes sucked up and diminished. Now this motion is called a motion of Equation; because it is for this end, namely that the *superficies* of the water may be made equall, and distant alike on every side from the centre of gravitie.

The other, being that which dependeth upon some externall cause, is such as may be distinguished into a threefold motion. One is rapt, and caused by force of the heavens, whereby it flowseth from * East to West. The second is a motion of Libration, in which the sea striving to poise it self equally, doth (as it were) wave from one opposite shore to another. And note that this is onely in such as are but strais and narrow seas, being a kind of trepidation in them, or (as I said before) a motion of Libration; just like a rising and falling of the beam of an equall-poised balance, which will not stand still, but be continually waving to and fro. The third and last is *Reciprocatio*, or *Æstus maris*, called the ebbing and flowing of the sea.

The cause of which hath added no little trouble, nor small perplexitie, to the brains of the best and greatest Philosophers. *Aristotle*, that master of knowledge, helps us little or nothing in this question. And yet * *Plutarch* affirmeth that he attributed the cause to the motion of the sunne. * Others have gathered from him that he seemed to teach, it was by certain exhalations which be under the water, causing it to be driven to and fro according to contrary bounds and limits. But howsoever he taught, or whatsoever he thought, this we find, that nothing

* *Zanch. Tom 3. lib. 4 cap. 1. quæst. 6. thes. 1.*

* Note that this is pertinent to the openest seas, as the Atlantick and South seas, and especially between the Tropicks, where is a constant Easterly breath caused by the superiour motions, which draw together with them, not onely the element of fire, but of the aire and water also.

* *De placit. Philos. lib. 3. cap. 17.*

* *Dr. Fulk. Meteo. lib. 4.*

nothing troubled him more. For (as* *Cœlius Rhodiginus* writeth) when he had studied long about it, and at the last being weary, he died through the tediousnesse of such an intricate doubt. * Some say he drowned himself in *Negropont* or *Euripus*, because he could find no reason why it had so various a fluxion and refluxion, ebbing and flowing seven times a day at the* least; adding, before that his untimely and disastrous precipitation, these words, Ἐπειδὴ Ἀριστοτέλης οὐχ εἷλε τὸν Εὔριπον, Εὔριπος ἑλέτω τὸν Ἀριστοτέλη. *Quandoquidem Aristoteles non cepit Euripũ, Euripus capiat Aristotelem*; That is, *Although Aristotle hath not taken Euripus, yet Euripus shall take Aristotle*: meaning that that should end him, whose cause could not be comprehended by him.

*Antiquarum lectionum lib. 29. cap. 8.

* *Fust. Mart. Greg. Naz. Æschines orat. contra Ctes. L. Vall. Dialog. de lib. arbitrio, &c.*

* *Livie* saith that it is not seven times a day; but *temere in modum venti nunc huc nunc illuc rapitur. lib. 8. dec. 3.*

But leaving *Aristotle*, we shall find as little help from his master *Plato*, who (as did also the Stoicks) attributed the cause to the breath of the world. Such also have been the phancies of others; among whom *Kepler* may not be forgotten, who in good earnest affirmeth and believeth that the earth is a great living creature, which with the mightie bellows of her lungs first draweth in the waters into her hollow bowels, then by breathing respires them out again. A prettie fiction this; and vvell vvorthie the pen of some fabling poet, rather then to be spoken in good sober sadnesse, and affirmed as a truth.

Others vvould have the cause to be by reason of vvaters in the holes of the earth forced out by spirits; vvhich comes something near to that before concerning the breath of the vvorld.

A third sort attribute the cause to the circular motion of the earth; affirming that there is a daily motion of the earth round about the heavens, vvhich it performeth in 24 houres: the heavens in the mean time onely seeming to move, and not moving in very deed. This opinion came first from the *Pythagoreans*, and is defended by the

the *Copernicanians* as an effect of the foresaid motion. As for example; the earth moving swiftly round, the water not able to follow the motion, is left behind, and caused to flow to and fro; like as in a broad shallow vessel may be seen: for put water in such a vessel, and let it be swiftly pulled forward, and then you shall see that by being left behind, it will beat it self against the one side, before the other can at all partake of its company: and so it is also in the earth, leaving the waters behind whilest it moveth.

But if this opinion be true; first tell me how it comes to passe that the sea doth not ebbe and flow alwayes at one and the same time, but altereth his course, and is every day about one houre later then other. Secondly, shew me why the tides are at one time of the moneth higher then at another. Thirdly, let me be informed why broad lakes and large rivers do not flow as well as seas. Fourthly, let me be rightly instructed how it comes to passe that things tend to the earth as their centre, if the sunne (as *Copernicus* and his followers imagine) be the centre of the world. Fifthly, shew me why the aire in the middle Region is not rather hot then cold: for surely if the earth should move round with a diurnall motion, as they maintain, then the middle Region must be either farre higher then it is, or else the aire would be so heated by going round, that the coldnesse in it would be either little or none at all; for it is a ruled case, that *Remotio à motu circulari dat quietem, frigiditatẽ, et gravitatem; sicut propinquitas dat motum, calorem, et levitatem:* and thereupon it comes to passe that we have coldnesse in the middle Region, the cause first beginning it being in respect of the hills which hinder the aire from following the motion of the heavens; as in * two severall places of the second dayes work I have declared. Sixthly, I would also know why an arrow being shot upright should

The earth hath no circular motion.

Vid chap. 4. sect. 2. and chap. 5. sect. 2. Paragraph 1.

should fall near upon the same place where the shooter standeth; and not rather fall beyond him, seeing the earth must needs carry him farre away whilest the arrow flyeth up and falleth down again: or why should a stone, being perpendicularly let fall on the West side of a tower, fall just at the foot of it; or on the East side, fall at all, and not rather be forced to knock against it? We see that, a man in a ship at sea, throwing a stone upright, is carried away before the stone falleth; and if it be mounted up in any reasonable height, not onely he which cast it, but the ship also is gone. Now why it should be otherwise in the motion of the earth, I do not well perceive. If you say that the earth equally carries the shooter, aire, arrow, tower, and stone; then methinks you are plainly convinced by the former instance of the ship: or if not by that, then by the various flying of clouds, and of birds; nay, of the smallest grashopper, flie, flea, or gnat, whose motion is not tied to any one quarter of the world, but thither onely whither their own strength shall carry them: some flying one way, some another way, at one and the same time. We see that the wind sometimes hindereth the flight of those prettie creatures; but we could never yet perceive that they were hindered by the aire; which must needs hinder them if it were carried alwayes one way by the motion of the earth: for from that effect of the earths motion, this effect must needs also be produced.

Arm'd with these reasons, 'twere superfluous
To joyn our forces with Copernicus.

But perhaps you will say it is a thing impossible for so vast a bodie as the heavens to move dayly about the earth, and be no longer then 24 houres before one revolution be accomplished: for if the compasse were no *more then such a distance would make as is from hence to Saturns sphere, the motion must extend, in one first scruple

*Lansberg. comment. in motum terræ diur. pag. 7.

scruple or minute of time, to 55804 miles; and in a moment, to 930 miles: which is a thing impossible for any Physicall bodie to perform.

Unto which I must first answer, that in these mensurations we must not think to come so near the truth, as in those things which are subject to sense, and under our hands: For we oft times fail, yea even in them, much more therefore in those which are remote, and (as it were) quite absent, by reason of their manifold distance.

Secondly, I also answer, that the wonder is not more in the swiftnesse of the motion, then in the largenesse of the circumference: for that which is but a slow motion in a little circuit (although it be one and the same motion still) must needs be an extraordinary motion in a greater circle; and so, I say, the wonder is not more in the motion then in the largenesse of the circumference. Wherefore, he that was able, by the power of his word, to make such a large-compassed bodie, was also able so to make it, that it should endure to undergo the swiftest motion that the quickest thought can keep pace with, or possibly be forged in imagination: For *his works are wonderfull, and in wisdome he hath made them all.*

Besides, do but go on a while, and adhere a little to the sect of *Copernicus*, and then you shall find so large a space between the convexitie of Saturns sphere, and the concavitie of the eighth sphere (being more then 20 times the distance of Saturn from us, and yet void of bodies, and serving to no other purpose but to salve the annuall motion of the earth) so great a distance, I say, that thereby that proportion is quite taken away which God the Creatour hath observed in all other things; making them all * in number, weight and measure, in an excellent portion and harmonie.

*Wisd. 11. 20.

Last of all, let me demand how the earths motion and heavens

heavens rest can agree with holy Scripture. It is true indeed (as they alledge) that the grounds of Astronomie are not taught us in Gods book : yet when I heare the voice of the everlasting and sacred Spirit say thus, * *Sun stand thou still, and thou Moon in the valley of Ajalon,* I cannot be perswaded either to think, teach, or write; that the earth stood still : but the sunne stood, and the moon stayed, untill the people had avenged themselves on their enemies. Neither do I think after this that it vvas the earth vvhich vvent back, but the sunne upon Ahaz his diall in the dayes of Ezekias. For vvhen God had made the earth, vvhat said he? did he bid it move round about the heavens, that thereby dayes, vveeks, moneths and years might be produced? No. What then? This vvas its office, and this that vvhich it should do; namely * bud and bring forth fruit for the use of man. And for motion, it was absolutely and directly bestovved upon the heavens and starres: vvitnesse those very vvords appointing to the sunne and moon their courses; setting them in the heavens so as they should never rest, but be for signes, and for seasons, for dayes and for years. And so also the vvise * Siracides understood it, saying, *Did not the sunne go back by his means, and was not one day as long as two?*

*Josh. 10. 12, 13.

Esay 38. 8.

*Motus terra is nothing but *Germinatio terra.*

Gen. 1.

*Eccles. 46. 4.

I conclude therefore, and concluding cannot forget that svveet meditation of a religious and learned * Prelate, saying, *Heaven ever moves, yet is that the place of our rest : Earth ever rests, yet is that the place of our travell and unrest.*

* Bish. Hall.

And novv, laying all together, if the cause be taken avvay, the effect perisheth. My meaning is no more but thus; that seeing the earth is void of motion, the ebbing and flovving of the sea cannot be caused by it, but dependeth upon some other thing.

Or again, vvere it so that the earth had such a motion,

I

I should scarce believe that this ebbing and flowing depended on it. For (as I said before) if this were the cause, it could never be that the course of ebbes and flouds should keep such a regular alteration as they do day by day: Neither could it produce a cause why the tides should be more at one time of the moneth then at another: Nor yet (as some suppose) could the waters be suffered to flow back again, but alwayes must be going on as fast as they can, toward the Eastern part of the world. But I leave this and come to another.

It was a mad phancie of him who attributed the cause to an Angel, which should stand in a certain place of the world, and sometimes heave up the earth above the waters, sometimes constraining it to sink below them. In an ebbe, he heaves it up; and in a floud he lets it sink.

As improbable also is that of some others who imagine one Angel to be an Angel of the water, whose office is (as in the pool of *Bethesda*) to move the waters to and fro; and for proof of this, that place is alledged in the * Revelation, where when the vials were poured out upon the kingdome of the beast, one of the Angels is called an Angel of the waters. But know that the same answer made before concerning the moving of the winds, will serve to stop this gap. Or were it so that we must be tied to a literall sense, the compulsion overthrows the assertion; because he is called an Angel of the waters, not for that he causeth them to ebbe and flow, but because it was his office to corrupt them and turn them into bloud.

*Revel. 16. 5.

More probable was their opinion who attribute the cause to certain subterranean or under-sea fires, whose matter is of near akin to the matter of the Moon; and therefore, according to her motion, they continue their times of burning: and burning, they make the sea

so to boyl as that it is a tide or high-water; but going out, the sea sinks again.

But now if this opinion were true, then the water in a tide would be thinner, through the heat which causeth it to ascend, thinner then at other times: and so a ship carrying one and the same weight would sink deeper in a floud then in an ebbe; which experience shews to be otherwise. Yea were it so that there were such supposed fires in the bottome of the sea causing it to swell up like boyled water, then it would also follow that the sea water would be so hot that it might not be touched: For if the heat of the supposed fire be sufficient to make it ascend, it is sufficient also to make it hot: which would appear lesser in an ebbe then in a floud.

This is the most probable cause why the Sea ebbs and flows.

Wherefore, omitting these and the like opinions, the most allowable is to attribute this flux and reflux, to the effects of the divers appearances of the Moon: For we see by experience, that according to the courses of the Moon, the tides are both ordered and altered. By which it is not improbable that the waters are drawn by the power of the Moon, followvving her daily motion, even as she is carried vvith the *Primum Mobile*. Yea vvere it not so that the sea vvere hindered by some accident, some have supposed that these vvaters vvould go round from East to West in 24 houres; and so round again, even day by day. The accident hindering this circular motion, is in regard that the West ocean sea is shot in betvveen the firm land of America on the West part, and the main land of Africa and Europe on the East part. But vvere it so that there vvere no such accidentall let in the sea, to be hindered by the land, it vvould orderly follovv the Moon, and go daily round: And seeing also it is hindered by such an impediment, it is a probable conjecture to think, that it cannot but be forced to retire;

tire; for the firm land beats it back again. Thus Mr *William Bourn*, in the 5 book of his treasure for travellers, chap. 6. determineth.

Others there be who attributing the cause to the moon, do demonstrate it after another manner; namely that through her influence she causeth these alternate motions: and this influence of hers worketh according to the quadrate and opposite aspects of her position in the heavens; or according to the quadrate and opposite configurations from that place where she was at the beginning. For the seas, * saith a well learned Writer, begin to flow when the moon by her diurn rapt motion from East to West, cometh to the nine a clock point in the morning, or is South-east: then they will continue flowing untill she come to a quadrate aspect, or to 90 degrees, which will be about 3 of the clock in the afternoon, or be South-west when they cease from flowing and begin to ebbe, continuing so untill she come to 180 degrees, or the opposite place, which will be somewhat after nine of the clock at night, being the opposite place to that from which she began her flowing. Then again they begin to flow, and so continue untill she attain to 270 degrees from her first place, which will be after three in the morning. And then lastly they begin to ebbe, and so continue still, untill the moon come to that place where she was at the beginning: for there the floud begins again. Thus it is ordinarily; yet her illumination, the sunne and other starres may hasten hinder or something alter the moons influence, as we see in spring-tides, at the change and full; and neap-tides, at quarters and half quarters of the moon: confessed by * those who have been great masters in Astrologie.

* Sir Christopher Heydon, in his defence of Judiciall Astron. chap. 21. pag. 432.

And let this also be known, that though the moon have dominion over all moist bodies, yet not alike, because of other causes concurring; as the indisposition or

*Idem, pag. 433. cap. 21.

unfitnesse of the subject, or for want of matter, and the like considerations. As for example, though it be probable that there be tides *in mari Atlantico*, yet they are not to be perceived, by reason of the vast wideneſſe and profunditie thereof: in other places also of the sea are no tides, being hindered by the strength of some current, which prevaileth: and in fresh water there is no tide, because of the raritie, thinnesse, and subtiltie thereof, which cannot retain the influence of the moon.

Why all seas do not ebbe & flow.

Why fresh waters do not ebbe and flow.

And note also that in such havens and rivers as ebbe and flow, there may be great diversitie; which cometh to passe both according to the indraught, as also by reason of the crooked and narrow points and turnings of the banks, which do let and stay the tide from that which is the common and ordinary course in the main bodie of the sea: but afterwards, when it is in, and hath taken his sway, then it cannot so soon reverse back, but must continue untill the water behind it be descended or ebbed into the sea. The river *Thames* may serve as an instance in this: for it is not a full sea in all places of it at one instant, being three parts of a flood at the lands end, before it can be any flood at *London*. But were it so that there were no creeks, islands, straits, turnings, or other accidentall hinderances, then there should be no difference found in any sea, but the whole bodie should be swayed up and down with a constant course: whereas since it is otherwise, the times for every such place must be once found out, that thereby they may be known for ever.

Wherefore the cavils of some men are nothing worth who by bringing particular and rare (perhaps vain) examples, do think to take away this power from the moon. For sith this lunar regiment is pertinent to most seas, and that all our ocean doth follow her; the exceptions taken from certain straits, creeks, bayes, or such

such like places, ought to be referred to accidentall hinderances; as to the unaptnesse of the places, rocks, qualities of the regions, differing nature of the waters, or other secret and unknown impediments; such as manifest themselves in *Cambaia*. For it is reported, that there, although the tides keep their course with the moon, yet it is contrary to the course they hold in these parts; for they are said to increase, not with the full of the moon, but with the wane; and so the sea-crabs do likewise: amongst other things the nature of the water and qualitie of the region may much avail to this, if it be true. And in the island of *Socotora* (saith Mr *Purchas*) Don John of *Castro* observed many dayes, and found (contrary both to the Indian and our wont) that when the moon riseth, it is full sea, and as the moon ascends, the tide descends and ebbeth, being dead low water when the moon is in the meridian. These things are thus reported, and if they should be true, yet we must knovv that they are but in particular seas, as I said before, where a generall and universall cause may be much hindered, and in a manner seem as if it were altered.

They that descend the brinie waves
Of liquid Thetis flouds,
And in their ships of brittle staves Psal. 107. 23, 24.
Trade to augment their goods;
These men behold, and in the deeps they set
How great Gods wonders of the waters be.

I conclude therefore, and cannot but say, that this is as great a secret, to be in every point discussed and unfolded, as any nature can afford: *Arcanum enim naturæ magnum est*, It is a great secret of nature, and gives us therefore principall occasion to magnifie the power of God, whose name onely is excellent, and whose power above heaven and earth.

Last of all, this is the finall cause of the seas motion:

God hath ordained it for the purging and preserving of the waters. For as the aire is purged by winds, and as it were renewed by moving to and fro; so this motion keeps the waters of the sea from putrefaction.

An Appendix to the former Section, wherein the properties and virtues of certain strange rivers, wells, and fountains, are declared.

I Do not well know how to end this discourse of waters, before I have spoken something of the strange properties that are in certain rivers, wells, and fountains. Some are hot, because they are generated and flow out of veins of brimstone, or receive heat from those places where subterranean fires are nourished. For this is a generall rule, that all waters differ according to the qualitie of the place from whence they arise. Some again are sowre or sharp like vineger; and these runne through veins of allome, copperas, or such minerals. Some may be bitter, that flow out of such earth as is bitter by adustion or otherwise. Some may be salt, whose current is through a salt vein. And some may be sweet; these are such that be well strained through good earth, or runne through such mineralls as be of a sweet taste.

Water used in stead of vineger.

Our baths in the West countrey, and S. Anne of Buckstones well in the North part of *England*, & many other elsewhere, are hot. *Aristotle* writeth of a well in *Sicilie*, whose water the inhabitants used for vineger: and in divers places of *Germanie* be springs which harbour much sharpnesse. In *Bohemia*, near to the citie called *Bilen*, is a well (saith Dr *Fulk*) that the people use to drink of in the morning, in stead of burnt wine. And some (saith he) have the taste of wine; as in *Paphlagonia* is a well, that maketh men drunk which drink of it: now this is, because that water receiveth the fumositie of brimstone,

Water used in stead of burnt wine.

Water which makes men drunk.

brimstone, and other minerals, through which it runneth: and retaining their virtue, it filleth and entoxicateth the brain, as wine doth. For it is possible that fountains may draw such efficacie from the mines of brimstone, that they may fill their brains with fume that drink thereof, who also become drunk therewith. To which purpose *Ovid* speaketh thus,

Quam quicunque parùm moderato gutture traxit,
Haud aliter titubat, quàm si mera vina bibisset.

Which whoso draws with an immoderate throat.
Trips, as his brains in mere good wine did float.

And *Du Bartas* also,

Salonian fountain, and thou Andrian spring,
Out of what cellars do you daily bring
The oyl and wine that you abound with so?
O earth, do these within thine entralls grow?
What? be there vines and orchards under ground?
Is Bacchus trade and Pallas art there found?

Ortelius, in his Theatre of the world, makes mention of a fountain in *Ireland*, whose water killeth all those beasts that drink thereof, but not the people, although they use it ordinarily.

A water which is deadly to beasts, but not to men.

It is also reported, that near to the isle *Ormus*, there is a great fountain found, the water whereof is as green as the field in spring-time, and salt as the sea. He which drinketh but a little of it, is incontinently taken with a violent scowring: and he that drinketh very much thereof, dieth without remedie.

A purging killing water.

Ælianus makes mention of a fountain in *Bœotia* near to *Thebes*, which causeth horses to runne mad, if they drink of it.

A water which makes horses mad.

Plinie speaketh of a water in *Sclavonia* which is extreamly cold; yet if a man cast his cloth cloak upon it, it is incontinently set on fire.

A cold burning water.

Ortelius again speaketh of a boyling fountain, which will

A water which will both rost and bake.

will presently seethe all kind of meat put into it: it will also bake paste into bread, as in an oven well heated. This is said to be in the isle of *Grontland.*

A river which breedeth flies.

The river *Hypanis* in Scythia every day brings forth little bladders, out of which come certain flies. They are bred in the morning, fledge at noon, and dead at night: wherein mankind is also like them. For his birth is as his morning; his strongest time, or his middle time (be his time long or short) is as his noon; and his night is that, when he takes leave of the world, and is laid in the grave to sleep with his fathers: For this hath been the state of every one, since first the world had any one. The day breaking, the Sunne ariseth; the Sunne arising continues moving; the Sunne moving, noontime maketh; noontime made, the Sunne declines; the Sunne declining threatens setting; the Sunne setting, night cometh; and night coming, our life is ended. Thus runnes away our time. If he that made the heavens Sunne, hath set our lives Sunne but a small circumference, it will the sooner climbe into the noon, the sooner fall into the night. The morning, noon, and evening (as to those flies) these three conclude our living.

A water which maketh oxen white.

Clitumnus, saith *Propertius*, *lib.* 3. is a river or spring in Italie which maketh oxen that drink of it, white. Dr. *Fulk* yieldeth this reason, namely because the qualitie of the water is very flegmatick, *Fulk. Met. lib.* 4.

Water which maketh sheep black or white.

Plinie speaketh of the river *Melas* in *Bœotia*, which maketh sheep black: But *Cephisus*, another stream which flows out of the same lake, makes them white. See *Plin.* in the 103. chap. of his 2 book.

Water which makes them red.

Plinie also, in the former book and chapter, makes mention of the river *Xanthus*, which will make the flocks turn red, if they drink the water. *Solinus* affirmeth the like of a fountain in *Arabia* near to the Red-sea, saying, *in littore maris istius fontem esse, quem si oves biberint,*

rint, mutent vellerum qualitatem, at fulvo postmodum nigrescant colore. To vvhich purpose vve may heare *Du Bartas* descant thus,

**Cerona, Xanth, and Cephisus, do make*
The thirsty flocks, that of their waters take,
Black, red, and white: And near the crimson deep,
Th' Arabian fountain maketh crimson sheep.

*Plin. lib. 31. cap 2. See also lib. 2 cap. 103.

Seneca speaketh of a river vvhich maketh horses red. Novv these things may be, as Dr. *Fulk* yields probable conjecture, in that the qualitie of the vvater may alter the complexion; and the complexion being altered, the colour of their vvool and hairs may be changed. *Aristotle*, in his 3 book, chap. 12. *de histor. animal.* maketh mention of such like waters also: as there is a river in *Assyria*, called *Psychrus*, of that coldnesse, vvhich causeth the sheep that drink thereof to yean black lambes: in *Antandria* there are tvvo rivers, the one maketh the sheep vvhite, the other black: the river *Scamander* doth die them yellovv. Dr. *Will.* in his Hexap. on Gen. *ex Aristot.*

A water like to the former.

Plinie makes mention of the Hammonian fountain, saying, *Jovis Hammonis fons interdiu frigidus, noctibus fervet*, The fountain of Jupiter Hammon is cold in the day time, and hot in the night. Like unto vvhich is that vvhich he calleth the fountain of the Sunne; excepting that the vvater is svveet at noon, and bitter at midnight: but for the times of cold and heat, it is like to the other fountain. *lib.* 2. *cap.* 103. Some seem to think that this may be the reason, namely, that the cold humidity of the night nourisheth the heat, and by an *Antiperistasis* causeth it to reinforce it self invvard: but by day (the Sunne-beams sucking up that heat vvhich is in the surface, that is to say, above) the vvater remaineth cold. Others determine thus, saying that this may be by the same reason that vvell-vvater is colder in summer then it is in vvinter.

A water cold in the day, and hot in the night.

We

A water turning wood into stone.

We have in *England* wells which make wood and all things else that be cast into them, stones: the cause whereof is great cold.

A river which rests every seventh day.

Josephus, de Bello Judaic. lib. 7. cap. 24. writeth that there is a river in *Palestine*, which passeth between two cities, called by these names, *viz. Arcen*, and *Raphanee*, which river is admirable for an extraordinarie singularitie: namely, that having entertained his violent and swift course for the space of six dayes, on the seventh it remaineth dry: which being past, it runneth as before; and therefore it is called the river of the Sabbath: * *Du Bartas* calleth it the Jews religious river,

Keeping his waves from working on that day
Which God ordain'd a sacred rest for ay.

*In his 3 day.

A strange well in *Idumea*.

In *Idumea* was a well, which one quarter of the yeare was troubled and muddy, the next quarter bloudie, the third green, and the fourth clear. *Isiodore* makes mention of this, and it is called the fountain of Job.

Poysoning waters.

Seneca and others affirm that there be rivers whose waters are poyson: now this may be, in regard that they run through poysonous minerals, and receive infection from their fume, and the like. Such is the water *Nonacrinis* in *Arcadia*: of which it is recorded, that no vessell of silver, brasse, or iron, can hold it, but it breaketh in pieces; onely a mules hoof and nothing else can contain it. * Some write that *Alexander* the great, through the treacherie and plots of *Antipater*, was poysoned with this water. *Curtius* calleth it the water of *Styx*, *lib.* 10. *juxta finem.*

*Plutarch. See also Just. *lib.* 12. and Curt. *lib.* 10.

A water which makes cattell give black milk.

In an isle of *Pontus*, the river *Astaces* overfloweth the fields; in which whatsoever sheep or other milch cattell be fed, they alwayes give black milk. This river *Plinie* forgetteth not, *lib* 2. *cap.* 103.

Poysoning waters.

It is reported that in *Poland* is a fountain so pestilent, that the very vapour thereof killeth beasts when they approch unto it.

There

There be some waters which make men madde who drink of them. Which is, in a manner, by the same reason that other fountains have made men drunk.

Water which makes men mad

Some again spoil the memorie, and make men very forgetfull: which may very well be, by procuring obstructions in the brain. *Fulk.*

A water that spoils the memorie.

Seneca speaketh of a water, that being drunk provoketh unto lust. *Plinie*, in the second chapter of his 31 book, speaketh of certain waters in the Region of *Campania*, which will take away barrennesse from women, and madnesse from men. And in *Sicilia* are two springs: one maketh a woman fruitfull; the other, barren.

A water which procureth lust.

The foresaid *Plinie*, in the same book and chapter, saith that the river *Amphrysus* or *Aphrodisium*, causeth barrennesse.

A water which causeth barrennesse, & another which causeth the teeth to fall, &c.

And again, in his 25 book and 3 chapter, he speaketh of a strange water in *Germanie*, which being drunk, causeth the teeth to fall out within two years, and the joynts of the knees to be loosed.

Lechnus, a spring of *Arcadia*, is said to be good against abortions.

In *Sardinia* be hot wells that heal sore eyes: and in *Italie* is a well which healeth wounds of the eyes. In the isle of *Chios* is said to be a well which makes men abhorre lust: and in the same countrey, another whose propertie is to make men * dull-witted. Now these and the like qualities may as well be in waters vvhich are mixed vvith divers minerals and kinds of earth, as in herbs, roots, fruits, and the like.

*For this see *Pliny lib.* 31. *cap.* 8. where also you may read of another that sharpeneth the senses.

The lake *Pentasium* (as *Solinus* saith) is deadly to serpents, and vvholsome to men. And in *Italie*, the lake *Clitorie* causeth those that drink of it to abhorre wine. *Fulk Met. lib.* 4.

Ortelius, in the description of *Scotland*, maketh mention of divers fountains, that yield forth oyl in great quantity:

Fountains of oyl.

quantity: vvhich cometh to passe by reason of the viscositie or fatnesse of the earth vvhere they passe, and from vvhence they arise. The like may be also said concerning pitchie streams, &c.

Waters of a strange temper.

Some vvaters are of that temper, that men sink not in them, although they knovv not hovv to svvim. The like lake is said to be in *Syria*, in vvhich (as *Seneca* relateth) no heavie thing vvill sink.

Of the fountain *Dodone*.

That vvhich *Plinie* vvriteth of the fountain *Dodone*, *lib.* 2. *cap.* 103. is very strange: vvhereupon *Du Bartas* makes this descant,

What should I of th' Illyrian fountain tell?
What shall I say o' th' Dodonean well?
Whereof the first sets any clothes on fire;
Th' other doth quench (who but will this admire?)
A burning torch; and when the same is quenched,
Lights it again, if it again be drenched.

There be some vvells, vvhose vvaters rise and fall, according to the ebbing and flovving of the sea, or of some great river unto vvhich they are near adjoyned. The reason therefore of this is plain.

Waters which work miracles. *In which he was deceived: it was rather to try their strength, and make them hardie; as *Verstegan* well declareth, *Restitut. cap.* 2. *pag.* 45.

But strange is that vvhich Dr *Fulk* mentioneth of the river *Rhene* in *Germanie*, vvhich vvill drovvn * bastard children that be cast into it, but drive to land them that be lawfully begotten. Or is not this strange vvhich he also mentioneth of a certain vvell in *Sicilia*, vvhereof if thieves drink, they are made blind by the efficacie of the vvater? The like I find in other Authours concerning certain fountains in *Sardinia*: for it is said that they have this marvelous propertie; namely, that if there be a cause to dravv any one to his oath, he that is perjured and drinketh thereof, becometh blind, and the true vvitnesse seeth more clearly then he did before. *Solinus* and *Isiodore* report it.

*De admirandis cap. 51. & 52.

Solinus also and* *Aristotle* make mention of a vvater called

called the *Eleusinian* or *Halesinian* spring, which, through the noise of singing or musick, is moved as if it danced or capered up and down: whereas at other times it is still and quiet. But I conclude, and (as that * honoured Poet) cannot but say,

Sure in the legend of absurdest fables
I should enroll most of these admirables,
Save for the reverence of th' unstained credit
Of many a witnesse, where I yerst have read it;
And saving that our gain-spurr'd Pilots find,
In our dayes, waters of more wondrous kind.

* *Du Bart. 3 day.*

Unto which (in things that are strange, and not fabulous) let this also be added, that God Almighty hath proposed infinite secrets to men, under the key of his wisdome, that he might thereby humble them; and that, seeing what mere nothings they are, they might acknowledge that all are ignorant of more then they know: for indeed this is a rule, *Maxima pars eorum quæ scimus, est minima pars eorum quæ nescimus; The greatest part of those things which we know, is the least part of those things which we know not.*

We ought to make the best uses of the strangest things.

Sect. 3.

Of the drie-land appearing after the gathering of the waters.

THe waters were no sooner gathered, but the drie-land then appeared: and this may be called the second part of the third dayes work. For the end of the gathering of the waters was, that the earth might shew it self; and not onely so, but that also it might appear solid and drie.

Two things therefore (saith *Pareus*) did the earth in this act principally receive: one was that it might be conspicuous; the other, that it might be solid and drie: and

and both depended upon the law of great necessitie.

For first, had it been continually covered with waters, how could it have been a place for habitation? either man must have been otherwise then he is, or else the earth must, as it was, be uncovered.

Secondly, were it uncovered, and not also drie and solid, it could not conveniently have bore up those living creatures, weights, and other things, which tread and presse upon it. Whereupon Expositours well witnesse, that earth is so named from the Hebrew *Erets*: which (say they) implieth a thing trod and runne upon by the creatures on it, and heavenly orbs about it. The same word spoken of particular places, is englished *land*; as the land or earth of Canaan, and the like.

Here then it appeareth, that this was that time when the earth received her proper elementarie qualitie: which it had potentially before, but not actually till now. Now therefore, it being not onely uncovered, but also made drie, it might easily be distinguished from the other three elements of fire, aire, and water. For the proper qualitie of the fire is heat; of the aire, is *moisture; of the water, is coldnesse; and of the earth, is drinesse. These qualities, I say, are most proper and peculiar to them: yet so, as the aire is not onely moist, but of a moderate heat, as being neareſt to the element of fire; the water not onely cold, but also moist, as coming neareſt to the nature of aire; and the earth, not onely drie, but something cold, as being hoast or landlord to the water: and upon these terms the elements are combined together; there being in all an harmonious order; pointing to him, who in number, weight, and measure, hath constituted all things.

I will not go about to prove that the earth is the centre of the world, for fear I should be like to him, who disputed whether snow were white: onely I will adde, that

* *Humiditas non est æstimanda ex irrigatione, sed ex propria definitione, quòd scilicet difficulter alijs terminis clauditur. Jam videmus aquam includi faciliùs certis limitibus quàm aerem, ergò &c. Quòd autem aqua magis humectat, id fit propter crassiorem substantiam. Cùm enim humiditas aquæ in densiore materia hæreat, ideo est magis unita, & proinde efficacior ad humectandum. Aeris verò humiditas tam crassam substantiam, sicut aqua, non habet, & propterea tantum madorem corporibus præbere nequit: & quòd quandoque exsiccare videatur, id non est per se sed per accidens, putà per exhalationes, &c.*

that even as an infant is potentially rationall by nature, but is made rationall in act, by youth or years; so it was with the earth, both before and after the drying of it. Unto which let this also be joyned, that the earth is not so arid or drie that it is void of all moisture: for then it would be dissolved and fall into dust. But it is arid and dry, that it might be solid and firm; retaining in the mean time, even in the solid parts of it, such a conveniencie of humour, that all parts may both be glewed together, and also have sufficient nutriment for the things, which, like to a teeming mother, shè either bringeth forth, or nourisheth in her wombe.

Thus was the earth prepared: and thus was it made a fit habitation for man to dwell on. But, as if man were not alwayes worthy to tread upon such a solid foundation, we see it often shakes, and quakes, and rocks, and rends it self: as if it shewed that he which made it, threatened, by this trembling, the impietie of the world, and ruines of those which dwell upon the earth. For though the * efficient, * materiall, and * formall causes of an earthquake be naturall; yet the finall is the signification of an angry God, moved by the execrable crimes of a wicked people: according to that of David in the 18 Psalme at the 7 verse, *The earth trembled and quaked: the very foundations of the hills also shook and were removed, because he was wroth.*

Fear chills our hearts. What heart can fear dissemble
When steeples stagger, and huge mountains tremble?

The Romanes, in times past, commanded by publick edict, that prayers and supplications should be made in time of an earthquake: but they must call upon no god by name, as on their other holy-dayes, for fear they mistook that god unto whom it belonged.

And the most ancient of the Grecians called *Neptune* the shaker and mover of the earth; because they supposed

** Efficiens est calor solis, & simul ignis subterraneus, quibus suppeditant tres superiores planetæ.*
** Causa materialis est spiritus seu vapor, in terræ visceribus conclusus, exire contendens.*
** Forma est ipsa concussio terræ & agitatio exhalationum terra inclusarum.*

sed that the cause proceeded from the fluctuations and flowings of waters up and down in the hollow places under ground.

Others thought that the shaking proceeded from the downfalls of subterranean dens or caves; and that sometimes whole mountains sunk in, and they caused the trembling.

The cause of earthquakes.

But by that which I said before in the generation of winds, it appeareth, that what it is, which is the cause of winds above the earth, is also the cause of trembling and shaking in the earth. For when it happeneth that aire and windie spirits or Exhalations be shut up within the caverns of the earth, or have such passage as is too narrow for them, they then striving to break their prisons, shake the earth, and make it tremble. Now this imprisonment is said to be caused thus; namely, when the earth, which is drie by nature, happeneth to be watred by continuall rains; then, not onely the pores and caverns thereof are stopped and closed up, but even the aire and Exhalations within the earth are increased. To which purpose, Dr *Fulk*, in the third book of his Meteors, writeth, saying, *The great caves and dens of the earth must needs be full of aire continually* (for there is no *vacuum* in nature:) *but when by the heat of the Sunne, the moisture of the earth is resolved, many Exhalations are generated, as well within the earth, as without; and whereas the places were full before, so that they could hold or receive no more except part of that which is in them be let out, it must needs follow that in such countreys where the earth hath few pores, or else where they be stopped with moisture, that there, I say, these Exhalations striving to get out, do either rend the earth, or lift it up; that thereby either a free passage may be had, or else room enough to abide within.* I am persuaded, that as in other winds, there be also in this, subterranean

ranean fires, which help to move and stirre the Vapours and Exhalations. Neither do I think that the Sunne is the onely cause of shutting the pores of the ground: for then earthquakes would in a manner be as frequent and common, as dryings after a rain: Some of the other Planets therefore have their operation in this effect. Which (as Astrologers witnesse) is *Saturn*, being of an astringent nature: and chiefly in earthie signes must this be produced. For (say they) *if *Saturn* have the sole dominion either in the revolution of the world, or in any great conjunction, or in the ecliptick place, and be strong in earthie signes (such as be *Taurus*, *Virgo*, and *Capricorn*) and shall behold the Moon, when she is impedite, with a quadrate or opposite aspect, then he foreshewth that there will be an earthquake. And questionlesse this is not altogether idle: For the influence of the Planets is divers, and may as well (according to their places and positions) work these effects, as have any power at all in the changes and alterations of the aire, in the producing of Meteors, cherishing of plants, and the like. And happily it is not *Saturn* onely, nor the bright beams of the Sunne, but other of the Planets also being conveniently placed and disposed, which helpeth forward this sad effect.

*Origanus de effect. cap. 9. ex Haly &c.

Authours vary about the kinds of earthquakes; some making more, some fewer kinds.

The kinds of earthquakes.

Aristotle, De Meteoris lib. 2. cap. 8. maketh onely two *Tremor*, and *Pulsus*; a *Trembling*, and a *Beating*. Some adde a third, which they call *Hiatus*. Others make seven. And some adde onely foure: to which may be joyned a fifth.

The first is, when the whole force of the wind driveth to one place, there being no contrary motion to let or hinder it. Many hills and buildings have been rushed down by this kind of earthquake, especially

when the wind causing it, was strong: For if it be a feeble wind, it onely looseth or unfasteneth foundations: if lesse feeble, then without further harm, the earth onely shakes, like one sick of an ague. This is called a laterall, or side-long shaking.

The second is not so much laterall as perpendicular or upright; which is when the earth with great violence is so lifted up, that the buildings are like to fall, and by and by sinketh down again: For after the wind, that caused the earth to swell, is broke out of prison, the earth returneth to his old place, even as it was before.

The third kind is *Hiatus*, a gaping, rending or cleaving of the earth, one part being driven so farre from another, that whole towns, cities, hills, rocks, rivers, seas, and the like, are swallowed up and never seen again.

The fourth is a shaking that causeth sinking; and is farre differing from the former: For now the earth splitteth not, but sinketh; this being in such places, where, though the surface of the ground be solid, yet it hath but a salt foundation; which being moistened with water driven through it by the force of the shaking Exhalation, is turned into water also. Thus was the Atlantick Ocean caused to be a sea, whereas before it was an island; according to the * testimonie of famous *Plato*, who lived in his flourishing fame about 366 years before Christ was born: and before his time it was that this island sunk.

* *Plat. in Timeo.*

A digression touching the new found world.

Where, by the way, in a word or two may be discussed, not so much how the late discovered parts of the world came to be peopled, as how at the first to be unknown.

Concerning which, this I think may be supposed, that *America* was sometimes part of that great land which

Plato

Plato calleth the Atlantick island, and that the Kings of that island had some intercourse betvveen the people of *Europe* and *Africa*. Some have related that they vvere the sons of *Neptune*, and did govern part of *Europe* and *Africa*, as vvell as of the said island: in vvhich regard there vvas knowledge of the late known parts long ago. But vvhen it happened that this island became a sea, time vvore out the remembrance of remote countreys: and that upon this occasion, namely by reason of the mud and dirt, and other rubbish of the island. For vvhen it sunk, it became a sea, vvhich at the first vvas full of mud; and thereupon could not be sailed, untill a long time after: yea so long, that such as vvere the sea-men in those dayes, vvere either dead before the sea came to be clear again, or else sunk vvith the island: the residue, being little expert in the art of navigation, might, as necessitie taught them, sail in some certain boats from island to island; but not venturing further, their memorie perished, And not onely so, but also thus: this island sinking might so damp up the sea, that neither those that vvere in these parts did ever attempt to seek any land that vvayes to the Westvvards; nor yet those vvho where remaining upon that part of the island that did not sink, vvould ever attempt to seek any land unto the Eastvvards: and so the one forgot the other.

More I might say touching this thing: but this (perhaps) is more then enough. Yet that such an island vvas, and svvallovved by an earthquake, I am verily persvvaded: and if *America* joyned not to the West part of it, yet surely it could not be farre distant, because *Plato* describes it as a great island: neither do I think that there vvas much sea betvveen *Africa* and the said island. But I leave this digression and proceed.

The fifth kind of earthquake is contrary to the former: for as before the ground sinks dovvn, so novv it is

cast up, like as in the second kind already mentioned: onely this is the difference, that now it returneth not to its place again, but remaineth a great mountain: an embleme whereof may be seen in the busie mole casting up hills in a plain ground. And note that if such a rising be in the sea, it not onely causeth overflowings, but produceth likewise many islands, such as were never seen before. And thus there may be five severall kinds of earthquakes.

The attendants of an earthquake.

Know also that an earthquake hath both his *Antecedentia*, and *Subsequentia*.

The *Antecedentia* are the signes which go before it, and shevv that it vvill be.

The *Consequentia* or *Subsequentia*, are the effects which follow after it, and shew that it hath been.

Signes of an earthquake.

As for the *Antecedentia*, or signes, they be of these sorts chiefly.

First, a great tranquillitie or calmnesse of the aire, mixed with some cold: the reason of which is, because the exhalation which should be blowing abroad, is within the earth.

Secondly, the sunne is observed to look very dimme certain dayes before, although there be no clouds: the reason of which is, because the wind, which should have purged and dissolved the grosse aire, is taken prisoner and enclosed within the bowels of the earth.

Thirdly, the birds flie not, but sit still beyond their ordinary wont, and seem as if they were not fearfull to let any one come near them: the reason of which is, because either the pent exhalation sendeth some strange alteration into the aire, which slenderly breatheth out of some insensible pores of the earth; which it may do though the exhalation comes not out: or else it is that they are scarce able to flie for want of some gentle gales for their wings to strike upon; it being a thing vvell knovvn,

known that birds flie more willingly, and cheerfully, when the aire is of such a temper.

Fourthly, the weather is calm, and yet the water of the sea is troubled and rageth mightily: the reason of which is, because the great plentie of spirits or wind in the bottome of the sea beginneth to labour for passage that way, and finding none, is sent back again; whereupon soon after it shaketh the land. This is evermore a certain signe.

Fifthly, the water in the bottome of pits and deep wells is troubled, ascending and moving as if it boyled, stinking and is infected: the reason of which is, because the exhalation being pent, and striving to get forth, moveth some stinking mineralls and other poisonous stuff to the springs of those waters; and they, with the struggling exhalation, stirre and attaint them.

Sixthly, there is a long thin cloud seen in a clear skie, either a little before sunne-setting, or soon after: now this is caused by reason of the calmnesse of the aire; even as *Aristotle* observeth, that in a quiet sea, the waves float to the shore, long and straight. I do not think that this alone can be any more then a very remote signe, unlesse it be joyned with some of the other signes already mentioned: for although such a cloud may be seen, yet every calm brings not an earthquake, neither are all places alike subject to them.

The last signe, and that which cannot but be infallible, is the great noise and sound which is heard under the earth, like to a groning, or very thundering. And yet some say, that this is not alwayes attended with an earthquake: for if the wind find any way large enough to get out, it shaketh not the earth. Now this noise is made by the struggling of the wind under the earth.

Next after the *Antecedentia*, the *Consequentia* of

fects of earthquakes.

earthquakes would be considered; and these (as I said) be their effects: which indeed be not so much the effects of the earthquake, as of the exhalation causing the earthquake.

The first whereof may be the ruine of buildings, and such like things, together with the death of many people. About the 29 yeare before the birth of Christ, vvas an * earthquake in *Jurie*, whereby thirtie thousand people perished. In the fifth yeare of *Tiberius* Emperour of *Rome*, * thirteen cities of Asia were destroyed in one night by an earthquake. Some say but twelve. *Lanq. chron.* In the 66 yeare of Christ, * three cities of Asia were also, by the like accident, overthrown; namely, *Laodicea*, *Hieropolis*, and *Colossus*. Again, in the yeare of Christ 79, three * cities of *Cyprus* came to the like ruine: and in the yeare following was a great death of people at Rome. And in the yeare 114, * *Antioch* was much hurt by an earthquake: at which time, the Emperour *Trajan* being in those parts, escaped the danger very difficultly. *Eusebius* placeth it in the second yeare of the 223 Olympiad: and *Bucholcerus* setteth it in the yeare of Christ one hundred and eleven. *Eusebius* makes mention of another before this, in the 7 yeare of *Trajan*: & this was that, which in *Asia*, *Greece*, & *Calabria*, overthrew nine severall cities. About the yeare of Christ * 180, or 182, the citie *Smyrna* came to the like ruine: for the restauration whereof, the Emperour remitted ten years tribute. About the yeare of Christ 369, *Eusebius* again telleth of an earthquake, which was in a manner all over the world, to the great damage of many towns and people. The like was in the yeare 551: at which time, a quave of the earth swallowed a middle part of the citie *Misia*, with many of the inhabitants, where the voice of them that were swallowed, was heard crying for help and succour. He also, in the yeare 562, men-

* *Lanquet* in his chron.

* *Tacit. lib. 2. annal. Euseb. chron.*

* *Euseb. ibid.*

* *Idem.*

* *Lanquet* in his chron.

* *Euseb.*

562, mentions another, wherewith the citie *Berintho* was overthrown; and the isles, called *Coy*, grievously shaken. Again, he writeth of a great tempest and earthquake in the yeare 1456, wherein (as he hath it out of *Chronica chronicorum*) there perished about *Puell* and *Naples*, 40 thousand people. Also, * in the yeare 1509 the citie of *Constantinople* was sorely shaken, innumerable houses and towers were cast to the ground, and chiefly the palace of the great Turk; insomuch that he was forced to fly to another place. Thirteen thousand perished in this calamitie. Again, in * the yeare 1531, in the citie *Lisbon*, a thousand foure hundred houses were overthrown (or, as some say, one thousand five hundred) and above six hundred so shaken that they were ready to fall, and their churches cast unto the ground, lying like heaps of stones. This earthquake was attended with a terrible plague and pestilence. And thus do these examples confirm the first effect.

* Fromond. Met. *lib.* 4. but Lanquet nameth the yeare 1508.

* *Idem.*

A second is the turning of plain ground into mountains, and raising up of islands in the sea, as *Thia*, in the time of *Plinie*; & *Therasia*, which (as *Seneca* witnesseth) was made an island even in the sight of the mariners, or whilest they were looking on. Thus also *Delos*, *Rhodos* and sundry others, came to be islands.

A third effect is the throwing down of mountains, and sinking of islands, and such like. Thus perished the Atlantick island, as I shewed before: yea thus also perished by the breach of the earth, those famous cities of *Achaia*, viz. *Helice* and *Buris*: of which *Ovid* writeth thus,

Si quæras Helicen & Burin, Achaidas urbes,
Invenies sub aquis: Et adhuc ostendere nautæ
Inclinata solent cum mœnibus oppida mersis.

If thou would'st *Helice* and wish'd *Buris* find,
Th' Achæan cities, (never lost in mind)

The water hides them : and the ſhipmen ſhow
Thoſe ruin'd towns and drown'd walls as they row.

A fourth effect is the cutting the neck of ſome *Iſthmus* from the continent : and thus *Brittain* was * ſevered from *France*; *Africa* from *Spain*; and *Sicilie* from *Italy*, with the like.

Verſtegan in his eſtitution, *cap.* 4.

A fifth is the tranſlation of mountains, buildings, trees, &c. unto ſome other places: of which we may find teſtimonie in good Authours of credit. *Albertus* calls this motion, a vection or a carrying.

A ſixth is the breaking out of rivers and fountains in ſome new places : which happeneth by the breaches made in the earth amongſt water-ſprings, through the violence of the Exhalation.

A ſeventh is plague and peſtilence, cauſed by the poyſonous fume of the Exhalation : ſuch as was in the yeare 1531, before mentioned, when *Lisbon* was ſo ſtrangely ſhaken : For putrid Exhalations infect the aire ; and the aire, us.

An eighth effect is famine; which may be by reaſon of the ſhocks and ſhakings of the earth, making it thereby become as it were ſick and ſteril. Or elſe it may be by reaſon that the long pent vapour carries with it a blaſting hurtfull fume.

A ninth is ſometimes the diſcovering of new burning hills ; which may happen when the abundance of Brimſtone and ſulphurous matter that is under ground, is ſet on fire through the violent motion of the Exhalation: and ſo it breaketh forth.

A tenth is (or elſe ſhould be) the fear of a Deitie. For if it be the Lords will by this work of his, in his handmaid nature, to ſhake it, no land can be ſure, no place ſo ſtrong that can defend us. Nay, the more ſtrong, the more dangerous : For the higher, the greater fall. With the wiſe man therefore I will ſay, *I know that whatſoever God*

God doeth, it shall be for ever: nothing can be put to it, nor any thing taken from it: And God doeth it, that men should fear before him, Ecclesiastes 3. 14.

Last of all, this I will adde: and it is a saying of one, well worthie to be remembred. *The whole earth* (saith he) *is nothing but the centre or point of the world. This is all the matter of our glorie; this our seat. Here we bear honours; here we exercise rule; here we desire riches; and here mankind troubleth and turmoileth himself: here we wage war, yea civil warre; and make the very earth become soft and fat with the crimson bloud of our mutuall slaughters. This is that place where we drive away from us our near neighbours, ditch in his grounds to ours, and so measure our demeans by driving others from our coasts, that thereby we may be like to him who can freely triumph in any part of the earth. But what of all this? When time, by ending us, hath put a measure to our covetousnesse; then, after all, what a small portion shall he obtain, who is dead and gone from all?* O amatores mundi, cujus rei gratiâ militatis? *Oh ye lovers of the world, for the sake of what thing is it that you strive?*

Let any judge, whether this lower Ball
(Whose endlesse greatnesse we admire so all)
Seem not a point, compar'd with th'upper Sphere,
Whose turning turns the rest in their career.
Lo then the guerdon of your pinching pain:
A needles point, a mote, a mite you gain:
A nit, a nothing (did you all possesse)
Or, if then nothing any thing be lesse.
"*Why then should man this nothing thus respect,*
"*As he, for it, Heav'ns Kingdome should neglect?*
If thou feed'st well, if feet and back be clad,
What more to thee can Kingly riches adde?
Not house, not land, not heaps of gold and treasure,
(When sicknesse of thy bodie hath took seisure)

Can

Can thence remove it, neither canst thou find
A farce in them to cure a troubled mind.

Which if man could well remember, he would cease to spend himself for nothing; and willingly subscribe to the lamentation made by the * Poet, under the person of *Hecuba*, upon the ruine of Troy; saying.

* *Seneca trag.*

Quicunque regno fidit, & magnâ potens dominatur aulâ,
Animúmque rebus credulum lætis dedit,
Me videat, & te, Troja: non unquam tulit
Documenta sæpe majora, quàm fragili loco
Starent superbi.

Which is (as * one translates it) thus,

* *Barkley* in his *Summ. bonum, edit. 2. lib. 2.*

He that his confidence puts in a Crown,
Or in his Palace potently doth frown,
And takes, with prosperous fortunes, all his joy;
Let him but look on me, and thee, O Troy.
Chance, by no greater influence, could declare,
In what a fickle state all proud things are.

To this purpose also serveth that Epigram of *Ausonius*, wherein he feigneth *Diogenes* to see the rich King *Cresus* among the dead: and there *Diogenes* himself hath as good an estate as he.

Effigiem Rex Cræse tuam, ditissime Regum,
Vidit apud manes Diogenes Cynicus.
Constitit: útque procul solito majore cachinno
Concussus, dixit, Quid tibi divitiæ
Nunc prosunt, Regum Rex O ditissime, cùm sis
Sicut ego solus, me quoque pauperior?
Nam quæcunque habui, mecum fero: cùm nihil ipse
Ex tantis tecum, Cræse, feras opibus.

Amongst the ghosts Diogenes beheld
Thee Cresus, of all kings, with most wealth swell'd.
This 'twas he did conclude; and as one mov'd
With greater laughing then his wont behov'd,

He

He farre off said, Thou richest once of kings,
Speak; (to this place below) what profit brings
All thy late pomp? for ought that I now spie,
We are alike; nay thou more poore then I.
For nought was what I had; I brought that store:
Thou hadst much wealth; yet now then I no more.

Like unto which, is that example of him, who lying at length upon the ground, and rising, by chance espied the print that his bodie at the full length made: he breaks out into this, or the like speech, saying, Lo here, what a small piece of ground will serve us when we die!! and yet living, we seek to conquer kingdomes. To which we may joyn that worthy command of famous *Saladine*, who being ready to depart this life, called for his standard-bearer, giving him in charge that he should go and take his winding sheet, and hanging it on his pike, he should go out with it, and tell to his camp, that of all his triumphs, of all his conquests, and of all his victories, he had nothing left unto him now but onely that to wrap up his bodie for his buriall.

Are all men mortall? are all born to die?
Can none on earth possesse eternitie?
Sure, he that looks upon the worlds frail stage,
And views the actions of this present age,
He cannot but with eyes indiff'rent see
That mortalls here would fain immortall be.
For by the symptomes is the sicknesse found;
And by the thoughts that equalize the ground,
Transcending rarely from that pitch, on high
Up to the court above the azure skie,
No hard thing 'tis, a judgement true to give,
That such descendents here would ever live.
But souls, inspired with the gales of grace,
Esteem the witching world no resting place;
A place of travell, not a place of stay;

Such

Such well devoted pilgrims count this way:
For sure the world is but a gaudie ball,
Whose quilt is vanitie, no joy at all.
Rouze then thy mind (witchi mortall) from the ground,
Think of that place where true joyes may be found:
Choak not thy soul with earth: for thou dost winne
Nought for thy care, but punishment of sinne:
Rouze then (I say) thy thoughts; think what it is
To be partaker of eternall blisse.
For when the drie-land God did make appear,
'Twas not that man should think his heaven's here.

Sect. 3.

Concerning the sprouting, springing, and fructification of the earth.

I Am now come to that which I called the third and last part of this dayes work: and it is the budding, and fructification of the earth. For after God had discovered it, and made it drie, he commands it to bring forth every green thing; as grasse, herbs, trees, &c. by which he caused it to change a mourning, black, and sad-russet weed, into a green, gallant, rich, enameled robe; and, lady-like, to paint it self in braverie; having green grassie locks, whose hair doth not more adorn then profit; whose rosie cheeks are not more admired, then, for their virtues, wisht: whose frank, free, fragrant, fruitfull breasts do so nourish her own children, sprung from her never-resting wombe, that they again adde nourishment to other things; both man and beast gaining by her never-ending labours. For God, by saying *Let it bring forth,* did not onely give an abilitie or power of bringing forth, but brought that power also into act; causing this act to be so begun, that it might be continued from thence to the very end of time. And to this purpose we see it is,

that

that the herb must bring forth seed, and the tree bear fruit. For God would not that either the herb should be sterill, or the tree barren; but with their seeds and fruits, according to their kinds: by which it was, and is, that their kinds both were, and are preserved. For first we see the buds spring up; these at the first are tender, but afterwards, growing a little older, we call them herbs: the herbs, being of convenient growth, bring forth flowers: under the flowers grow and wax ripe the seeds: the seeds being ripe and cast into the ground, do again bring forth the tender buds; and they herbs in their severall kinds; and so on, as before: by which you may see, how God hath constituted a never-ending course in nature; being the same in the trees also, as well as in the herbs. For their tender branches do not grow to be woodie, but by little and little; then they aspire to the height and name of trees; and being trees, they blossome; from their blossomes arise fruits; and within their fruits be seeds; and in those seeds resteth the power of other sprouts, or tender shoots.

Now some would observe from hence, that here is mention made of three kind of plants and fruits that the earth bringeth forth; *viz.* the bud, the herb, and the tree: which by others are distinguished into herbs, shrubs, and trees. But I rather think the bud is to be exempted, and not taken as one peculiar thing proper to a kind of its own. For (as I have already shewed) that which is the bud, may be taken, either for the tender shoot of any herb or grasse, or else for the tender and unwoodie branches of shrubs and trees: for that which they be in their sprouting, they are not in their perfection: neither are they in their perfection what they be in sprouting.

And is it not an endlesse wonder to see the varietie, growth, power and virtue of these, the earths rich liveries? some great, some lesse; some little, some low; some large,

The varietie and virtue of herbs and trees.

large, some long; some, whose virtue excells in this; some, whose power appears in that: some hot and moist; some cold and drie: some hot and drie; some cold and moist. Of all which I purpose to give my reader a taste, that thereby he may be driven to admire the rest.

Herbs hot and moist.

Basil.

And first of all I begin with *Basil*: in Greek it is ὄκιμον, or βασιλικὸν, in Latine, *Ocimum*, *Basilicum*, or *Regium*. This is an herb hot in the second degree, and somewhat moist.* *Galen* would not that this herb should be taken inwardly, because it hath a kind of superfluous moisture joyned to it; but being applied outwardly, it is good to digest, distribute, or concoct. We in England seldome or never eat it: yet we greatly esteem it, because it smelleth sweet, and (as some think) comforteth the brain. But know that weak brains are rather hurt then holpen by it; for the savour is strong: and therefore much smelled unto, it procureth the headach: and (as the Authour of the haven of health affirmeth out of *Hollerius*) *Basil* hath a strong propertie beyond all these. For (saith he) a certain Italian, by often smelling to *Basil*, had a scorpion bred in his brain, and after vehement and long pain he died thereof. Moreover, that we shunne the eating of it, is also necessary; because, if it be chewed, and laid afterwards into the sunne, it engendreth worms. Mr *Thomas Hill*, in his art of gardening, testifieth that the seeds of *Basil*, put up into the nose, procure sneezing; and being mixed with shoemakers black, do take away warts, killing them to the very roots.

Ger. in his Herb. out of Galen Simp. lib. 8.

A scorpion bred in the brain by the smell of *Basil*.

A medicine for warts.

Mallows.

The wild *Mallow* is called in Greek ἄκοστος, signifying *a mitigatour of pain*: & in Latine, it is *Malva sylvestris*. It hath a certain moderate and middle heat in it, together with some moisture. The leaves stamped with a little hony, and one anointed with them shall not be stung by bees, wasps, or the like.

How to keep bees from stinging.

Borage

Borage is a common herb, and yet some account a fourefold difference in it; as thus, *Garden Borage, white-flowred Borage, never-dying Borage* (so called, because fair blew flowers, ripe seeds, and buds for new flowers, may be seen all at once on it) and also another kind of *Borage*, which is little differing from the former, excepting that the flowers look fair and red. This herb is hot and moist in the first degree. *Borage.*

Unto this may be joyned *Buglosse*, which, according to *Dioscorides* (as Mr *Gerard* writeth) is the true *Borage*: whereupon, * saith he, many are of an opinion that the one is but a degenerate kind from the other. In the Greek it is called βύγλωσσον; and in the Latine, *Lingua bubula. Plinie* giveth a reason of this name; which is, because it is like an oxes tongue. Moreover, he likewise calleth it *Euphrosynum*, from the effect; namely, because it maketh a man merry and joyfull: For εὐφροσύνη is *Laetitia*; and εὐφρόσυνον signifieth some such thing as doth *laetitiam adferre*, or bring mirth: which he witnesseth of this herb to be true, saying that being put into wine it increaseth the delights of the mind. *Plin. lib.* 25. *cap.* 8. *Buglosse.* * *Herb.* pag. 654. Good to make one mertie.

The like is also said of *Borage*; *Ego Borago gaudia semper ago*. In which regard the distilled water of *Borage* or *Buglosse*, with the leaves and flowers, being drunk with wine, cannot but be good, comfortable, and pleasant for the brain and heart: it increaseth wit and memorie, engendreth good bloud, and putteth away melancholy and madnesse, as the authour of the haven of health affirmeth. An excellent water made of Borage, &c. being good against melancholy and sadnesse.

The herbs following are hot and dry.

NExt unto *Buglosse*, I mention *Balm* or *Baum*, because the water of it also being drunk in wine, is good to comfort the heart, to drive away all melancholy and sadnesse: in which regard it is not amisse to have them all *Balm.*

Bees take great delight in Balm.

all distilled together. Moreover I find it recorded that the hives of bees being rubbed with the leaves of this herb, causeth the bees to keep well together, and allureth others to come unto them: For, saith *Plinie, they delight in no herb or flower more; and therefore they fly not away from such hives as are either rubbed with the leaves, or anointed with the juice of this herb: and hereupon it cometh to be called *Apiastrum*; which is as much as to say, *The bees starre*, or *guide*. For when they are strayed farre from home, by the help of this herb they find their way again. But the common Latine name is *Melissa*, or *Citrago*. It is also called in some Authours, *Melissophyllum*, and *Meliphyllon*.

*Lib. 21. cap. 20.

A medicine for the Mother.

This is an herb which is hot and dry in the second degree; and good to be either eaten, or smelled unto by them who are subject to the Mother. *Gerard.*

Balm is good to close up wounds

Plinie writeth a strange secret in a kind of *Balm*, which he calleth *Iron-wort*; *viz.* that the leaves close up wounds without any perill of inflammation: and also that it is of so great virtue (which you may believe as you list) that though it be but tied to his sword which gave the wound, it stancheth the bloud.

Sage.

Sage, called in Greek ἡλιόφυλλον, is *Salvia* in the Latine: and amongst the many kinds which some observe, there are principally two; the greater, and the lesser. Some say it is hot and dry in the third degree: some name not the third so much, as the end of the second: others determine that it is hot in the first degree, and dry in the second.

This is an herb which hath many and singular properties; insomuch that the Salern school makes this demand.

Cur moriatur homo cui Salvia crescit in horto?

As if it should be said, such is the virtue of *Sage*, that if

if it were possible it would cause *Clotho* evermore to hold the distaffe, and *Lachesis* to spin perpetually: yea, *Atropos* must forbear to cut in two the thread of life: such a desire hath *Sage* to make a man immortall.

The Latine and English names speak greatly for the commendation of it. For *Salvia* takes the name of safety; and *Sage* is a name of wisdome.

Sith then the name betokens wise and saving,
We count it natures friend, and worth the having.

Beside these names, some call it the *Holy herb*, because women with child, if they be like to come before their time, and are troubled with abortments, do eat thereof to their great good: For it maketh them fruitfull, retaineth the birth, and giveth life unto it. *Ger.* in his Herball.

Sage is good for child-bearing women.

Moreover, *Sage* is singular good for the brain and head, quickeneth the memorie and senses, strengtheneth the sinews, is good against the palsie, and stayeth a shaking in any part of the body. The most of which properties are expressed in these two verses following,

Good for the brain.

Good against the palsie.

Salvia confortat nervos, manuúmque tremorem
Tollit, & ejus ope febris acuta fugit.

Sage makes the sinews strong, the palsie cures;
And by its help no ague long endures.

Also, the juice of this herb drunk with honie, is good for those that spit and vomit blood: for it stoppeth the flux thereof incontinently.

Good against spitting of blood.

And last of all, although I omit many virtues in this herb, yet one thing must not be forgotten. The leaves of the red *Sage* put into a wooden dish, wherein are put very quick coals with some ashes in the bottome of the dish to keep the same from burning, and a little vineger sprinkled upon the leaves lying upon the coals, and so wrapped in a linnen cloth, and holden very hot unto the side of those that are troubled with a grievous stitch,

Good against a stich in the side.

they take away the pain presently, and also greatly help the extremitie of a plurisie. *Ger.*

Rue.

Rue, or *Herb-grace*, in Latine is called *Ruta*, in Greek πήγανον; which is, *quòd calidit ate suâ* πήγνυσι τὸ σπέρμα, *semen quasi congelat*. If it be wild *Rue*, and not such as groweth in gardens, then it is hot and dry in the fourth degree: but garden *Rue* is a degree cooler and moister. *Plinie writeth that there is such friendship between it and the fig-tree, that it prospereth no where so well as under that tree; delighting also (as he affirmeth) to grow in sunnie places. It is an enemie to the Toad, as being a great enemie to poyson: And excellent is that medicine approved by *Mithridates*, King of *Pontus* in *Asia*, who lived in the dayes of *Pompey*, *viz.* that if any do eat fasting two drie wall-nuts, as many figs, and twentie leaves of *Rue*, with one grain of salt, nothing which is venimous may that day hurt him; it being also an excellent preservative against the pestilence. Which also the Salern school teacheth, in these words,

Lib. 19. cap. 8.

An antipathy between the Toad and Rue.

Good against poyson.

Allia, Ruta, Pyra, & Raphanus, cum Theriaca, Nux,
Præstant antidotum contra lethale venenum.

Garlick, Rue, Pears, and Radishes will make,
With Triacle and Nut,
An antidote, which will fell poyson slake,
And doore of danger shut.

Moreover, *Schola Salerni* setteth down some other properties of it: thus;

Ruta comesta recens, oculos caligine purgat;
Ruta viris coitum minuit, mulieribus auget.

Upon which occasion one once gave it this commendation.

Good for the sighe.

Rue makes men chaste, but not women.

Rue is a noble herb, to give it right:
For, chew it fasting, it will purge the sight.
One qualitie thereof yet blame I must:
It makes men chaste, and women fils with lust.

Which

Which last propertie is caused, in regard that the nature of women is waterish and cold: now *Rue* (we know) heateth and drieth; whereupon it stirreth them the more to carnall lust: but it diminisheth the nature of men, which is of temperature like to the air, *viz.* hot and moist; working thereupon a contrary effect from that which it doth in women.

Also, for those who are feeble in their sight, let them distill Rue and white roses together, and putting the water thereof into their eyes, it will open their windows and let in more light. To which joyn also this other experiment, taken out of *Schola Salerni*;

Aprecious water for the eyes.

Feniculus, Verbena, Rosa, & Chelidonia, Ruta,
Ex istis fit aqua quæ lumina reddit acuta.
Fennell, Vervine, Rose, Celandine and Rue,
Do water make which will the sight renew.

What other properties are pertinent to it, may be seen at large in *Pline, lib.* 19. *cap.* 8. *& lib.* 20. *cap.* 13. As also in *Gerard*, and such others as have set forth herballs.

I will adde therefore but one thing more; namely that the weeding of this herb with bare hands whilest the dew hangeth on the leaves, doth cause dangerous blisters and sores; which may again be helped with sallet oyl or the juice of hemlock, as Mr *Thomas Hill* in his art of gardening hath declared.

A note for garden-weeders.

Dill is called in Greek ἄνηθον, in Latine *Anethum* and *Anetum*; and in English sometimes *Anet* as well as *Dill*. It bringeth forth flowers and seeds in August; and, as some write, it is hot and drie in the second degree: but *Gerard* out of *Galen* affirmeth, that it is hot in the end of the second degree, and drie in the beginning of the same, or in the end of the first degree. The decoction of the tops of this herb dried, together with the seed being drunk, provoketh urine, allayeth gripings, hickets, and windinesse; engendreth milk in nurses breasts, with

Dill.

Dill is good to expell wind, provoke urine, engender milk in nurses breasts.

with such like other secrets. And of the green herb it is said, that it procureth sleep, sound and secure; according to which we have an old saying, that

Whosoever weareth Vervin or Dill,
May be bold to sleep on every hill.

An old custome.

And from hence haply it was, that garlands made of this herb were used to be worn at riotous feasts, that thereby they might not onely sleep, but sleep without danger.

Rosemarie.

Rosemarie, which some call the garland rose, or in Latine *Rosmarinus coronaria*, because, in times past, women have been accustomed to make garlands, or crowns of it, is an herb which is hot and drie in the second degree, and of an astringent or binding qualitie. The Greeks call it Λιβανωτὶς, from Λίβανος, *Thus*, or *arbor thurifera*; and so also * *Plinie* nameth it, because it hath a root like to the frankincense tree; or because the flowers smell much like to turpentine, or frankincense: which flowers, if they be distilled, and if a few cloves, mace, cinamon, and a little anniseed be steeped in their water for a few dayes together, and drunk at morning and evening first and last, it taketh away the stench of the mouth and breath, and maketh it very sweet, quickening the senses and memorie, strengtheneth the sinewie parts, and is best for those who have a cold moist brain. The same wine that *Rosemary* and the flowers have been sodden in, is good to wash the face and hands that they may look fair and clear.

*Lib. 19. capult.

Good against a stinking breath.

To make the face fair.

Also the conserve of *Rosemarie* flowers, taken every morning fasting is good against tremblings, faintings, palsies, &c. helping those who have a trembling at the heart, or are troubled with a dumbe palsie, or are subject to vomit up their meat. And for dull melancholy men, take the * flowers and make them into powder, bind them to the right arm in a linen cloth, and this powder (by

To prevent the palsie, and strengthen the stomach.

To cure melancholy.

*Note also that the flowers boiled in Goats milk, are good for the Ptisick. You must keep covered, and drink it cold.

(by working upon the veins) shall make a man more merrie and lightsome then ordinary. Take also the rinde of the *Rosemarie* and make powder thereof, then drink it in a little wine, and it helpeth you of the pose or stuffing in the head, if it proceed from the coldnesse of your brain. Also the wood of the stalk burnt to coals, and made into powder, and put into a linen cloth, is excellent to rubbe the teeth that they may look white, and to kill the worms in them if there be any, or to keep them from breeding if there be none. These, and sundry other, are the properties of *Rosemarie.*

To cure a stuffing in the head.

To scoure the teeth, and kill the worms in them.

I could wish that there were a greater plentie of this herb in *England* then there is. *France* hath great store; insomuch that at *Provence* it is used for a common fuell, the unlaboured grounds do so abound with it.

Of *Aconite* or *Wolf-bane* there be many kinds; and the forces of them all are extreamly pernicious and poisonsome: for it is reported that if either man or beast be wounded with an arrow, knife, sword, or any other instrument dipped in the juice of this herb, they die incurably within half an houre after.

Wolf-bane. An incurable poison.

And know that it is called *Wolf-bane*, because men hunting for wolves, used to poison pieces of ravv flesh with the juice of this herb, and lay them as baits, on which the wolves eating, die presently.

It hath a root like a scorpion, shining within like alabaster. Poets feigne (because it is such a venimous herb) that *Cerberus*, the three-headed dog of hell, being dragged up in a chain of Adamant by *Hercules*, did cast some of his venime upon it, whereby it became so venimous,

Yet nevertheless, as great and deadly a poisoner as it is, the juice of it cures the burning bite of stinging serpents, if it be taken and applied to the place grieved. Whereupon *Du Bartas* calleth it

A strange propertie in a poisoning herb.

A valiant venime, and couragious plant,

Disdainfull poison, noble combatant,
That scorneth aid, and loves alone to fight,
That none partake the glorie of his might.
For if he find our bodies 'fore-possest
With other poison, then he lets us rest,
And with his rivall entreth secret strife,
By both whose deaths man keeps his wished life.

Flea-bane.

Mullet, or *Flea-bane*, in Greek κονύζα, in Latine *Conyza*, is hot and drie in the third degree.

Good to drive away gnats and fleas, &c.

This herb burned, and smoked where flies, gnats, fleas, or any venimous things are, doth drive them away.

Ladies mantle.

An herb for maids.

Ladies mantle, or great *Sanicle*, is an herb of a drying nature. It is good to keep down maidens paps or dugs; and when they be great and flaggie, it maketh them lesser and harder. *Ger. Herb. pag.* 803.

Butterwort.

How sheep may catch a rot.

Butterwort is a kind of *Sanicle*; and it is hot and drie in the third degree. It is reported that when sheep eat of this herb (which is but when the want of other meat compells them) they then catch a rot.

An excellent herb for farmers.

Yet nevertheless, if it be bruised, the juice makes a good ointment for the dugs of cattel or kine, when they be either bitten by any venimous worm, chapped, rifted or hurt by other means. It is requisite that farmers and husbandmens wives should be well acquainted with this herb; as also that shepherds should know what ground aboundeth with it, that thereby they may prevent a mischief in their flock.

Horehound

Horehound, called in Greek πράσιον, in Latine *Marrubium*, is an herb hot in the second degree, and drie in the third.

A cure for a cough of the lungs.

Saffron.

The syrupe of this herb doth wonderfully and above credit ease such as have lien sick very long of a cough or consumption of the lungs: the like doth *Saffron*, bringing breath again, when one is even at deaths doore, if ten or twentie grains at the most (for too much is hurtfull) be given

given in new or sweet wine. *Saffron* is hot in the second degree, and dry in the first. And of it thus writeth the Salern * school,

Take Saffron, if your heart make glad you will;
But not too much, for that the heart may kill.

* Transl. by *Sir* John Harington.

Hyssop, in Greek ὕσσωπος, and in Latine *Hyssopus*, is an herb hot and dry in the third degree; whose chief virtues are briefly comprehended in these few verses of *Schola Salerni*.

Hyssop.

Hyssopúsque herba est, purgans è pectore phlegma:
Ad pulmonis opus cum melle coquenda jugata.
Vultibus eximium fertur præstare colorem.

Hyssop purgeth the breast, and puts a good colour in the face.

The Hyssop is an herb to purge and cleanse:
Raw flegmes and hurtfull humours from the breast:
The same unto the lungs great comfort lends,
With hony boild: but farre above the rest,
It gives good colour, and complexion mends,
And is therefore with women in request.

Mr *Gerard* setteth down the virtues of it thus;

1. A decoction of *Hyssop* made with figs, and gargled in the mouth and throat, ripeneth and breaketh the tumours and impostumes of the mouth and throat, and also easeth the difficultie of swallowing, coming by cold rheums.

Good for the throat.

2. The same made with figs, hony, water, and rue, and drunk, helpeth the inflammation of the lungs, the old cough, shortnesse of breath, and the obstructions or stoppings of the breast.

Good for the lungs and breath

3. The syrupe or juice taken with the syrupe of vinegar, purgeth tough and clammie flegme by stool, and driveth forth worms, if it be eaten with figs.

Good against worms.

4. And the water (saith he) is also good for the forenamed diseases; but nothing so speedie and forcible.

Water-Cresses, which the Latines call *Nasturtium aquaticum*, or *Sisymbrium aquaticum*, & the Greeks κορ-

Water-Cresses.

Good against the green sicknesse.

are of nature hot and drie. They help maidens of the green sicknesse, and send their accustomed lively colour again into their faces, if they take them thus, *viz.* chop them and boyl them in the broth of flesh, and use to eat such broth for a moneth together at morning, noon, and night.

Good against the stone.

Also being taken in the same manner they provoke urine, vvaste the stone and drive it out. *Ger. pag.* 201.

Sothernwood.

Sothernwood; in Greek ἀβρότονον, which name it also retaineth in the Latine, is hot and dry in the end of the third degree.

Good to make the beard grow.

It is said that the ashes of burnt *Sothernwood* brought to a powder, & tempered with the oyl of radish or some other thin oyl, cure the pilling of the hair from the head, and cause the beard to grow quickly. The same doth also the juice of this herb mixed with the oyl of *Dill.*

A strange secret.

Plinie writeth (which you may believe as you list) that a branch of this herb laid under the pillow of the bed, doth greatly move a desire to the venereall act; & is of force against all charms that have been to hinder it. *Plin. lib.* 21. *cap.* 21.

One Berrie.

Good against peevishnesse.

There is an herb called *Herba Paris*, *One Berrie*, or *Herb-Truelove*; so called because at the top of the stalk it beareth foure leaves like unto a true-lovers knot. This herb is good for such as are peevish and childishly foolish for they know not what; let them drink half a spoonfull of the powder, or of the berries at morn & even. *Ger.*

Dittanie.

Dittanie, called of the Greeks δίκταμνος, and in Latine *Dictamnum*, is an herb hot and dry. There are tvvo kinds of it; *Dittanie* of *Crete*, and *Bastard Dittanie.*

* *Lib.* 25. *cap.* 1.

That which is the true *Dittanie*, is of wonderfull operation. * *Plinie* saith that it groweth onely in *Crete* or *Candie*; and is beneficiall to the wounded Deere: For

An herb for the wounded Deere.

the wild Goats and Deere in *Candie*, when they be wounded with arrows or darts, do shake them out

out by eating of this herb; and it also healeth their wounds.

The *Bastard Dittanie* hath virtues somevvhat like to the first, but not of such great force. And of the first *Du Bartas* vvriteth thus,

But I suppose not that the earth doth yield
In hill or dale, in forrest or in field,
A rarer plant then Candian Dittanie,
Which wounded Deere eating, immediately
Not onely cure their wounds exceeding well,
But 'gainst the shooter do the shaft repell.

Cummin, in the Greek κύμινον, and in Latine *Cuminum*, is hot and dry in the third degree. *Cummin.*

The seeds of this herb sodden in vvater, if the face be vvashed vvith the same, do cause it to be clear and fair: yet use it not too often; for then it breedeth paleness: it is good therefore for such as be high-coloured, or have too much bloud in their cheeks. To make the face fair.

Moreover, chew this seed in your mouth after the eating of onions, garlick, or leeks, and it taketh away their smell.

Also, it stoppeth a bleeding at the nose, being tempered with vineger and smelt unto. For bleeding at the nose.

Mint is in Greek ἡδύοσμος; from ἡδὺς *Sweet*, and from ὀσμὸς *Smell*: and this, saith * *Plinie*, is the reason why it is not rather called μινθή. Moreover, as he also affirmeth, the smell of it stirreth up the mind, and must therefore be good for students; good also against the biting of Scorpions. *Mint.* * Lib. 19. cap. 8. & lib. 20. cap. 14. Good for students.

But let the good huswife never use to rub her milk-bowls with *Mints*: For *Mints* put into milk will not suffer the milk to curd, although the runnet or running (as they call it) be put unto it. This herb is hot and dry in the third degree; and, as *Schola Salerni* witnesseth, is good against worms. A note for good huswives. Good to kill worms.

The

The worms that gnaw the wombe and never stint,
Are killed, purg'd, and driv'n away by Mint.

Mustard. *Mustard*, or *Senvie* called in Greek by some νάπυ, by others σίνηπι, and in Latine *Sinapi* or *Sinapium*, is hot and dry in the fourth degree, and is marvellous good against a voice that's hoarse: wherefore if any be given to musick, and would fain have a clear voice to sing, let him make mustard seeds into powder, and work the same with hony into little balls, of the which let him swallow one or two down every morning fasting, and in short time his voice will be clear.

To make one sing clear.

Moreover, *Mustard* hath another good propertie, which must not be forgotten; and this it is,

Sir John Harringtons transl. of Schola Salerni. How a woman may save her credit.

She that hath hap a husband bad to burr,
And is therefore in heart not sad, but merry,
Yet if in shew good manners she would keep,
Onyons and Mustard seed will make her weep.

Peniryall. *Peniryall*, or *pudding-grasse*, in Greek γλήχων: and in Latine *Pulegium*, or *Puleginum regale* (for difference between it and wild *Thyme*, which some call *Pulegium montanũ*) is an herb hot and dry in the third degree, and good for such as are daily moved to sleep: For let them but take the fresh *Peniryall* and hold it in their mouth, under their tongue; and by often applying the fresh herb, they shall drive away the desire of sleep.

Good against drowsinesse.

Moreover, according to *Schola Salerni*,

Let them that unto choler much incline,
Drink Peniryall steeped in their wine:
And some affirm that they have found by triall,
That Gouts great pain is eas'd by Peniryall.

Good against choler and the gout.

Brionie. *Brionie*, or the *White vine*, as it is commonly called, is of two kinds: the one white, the other black; besides the wild one, which is *Brionia sylvestris*. This plant is called in Greek ἄμπελος λευκή, in Latine *Vitis alba*: but according to *Plinie*, it is *Brionia*, or *Maden*.

White

White *Brionie* is in all parts hot and drie, exceeding the third degree.

It scoureth the skin, taketh away wrinckles, freckles, sunne-burning, black marks, spots, and scarres of the face, if the juice be tempered with the meal of vetches, or tares, or of fenugreek: or boiled in oyl till it be consumed, it taketh away black and blew spots which come of stripes.

Good against scarres, spots, freckles, &c.

And, as *Galen* affirmeth, it is a plant profitable for tanners, to thicken their leather hides with. *Ger. ex Galen.*

An herb for tanners.

Madwort, or *Moon-wort*, in Greek [illegible], in Latine *Alyssum*, or *Lunaria*, is an herb of a temperature meanly drie, & very like to *Horehound*, but rougher and more full of prickles about the flowers; the colour of which flowers are tending to blew: the leaves are small and fashioned something like an heart, with a crooked line along the same, divers tufts depending on a long tail, on both sides: somewhat long, flat, and divided on the one side by crooked slittings, which seem to be round holes; the entry whereof is raised both on the one part, and on the other. The stalks thereof are made with hollow angles, garnished with grosse branches; and the grain in the cod, is made like a crescent with two horns; from whence it is called *Moon-wort*, or *Lunaria*. Thus I find it described: and note also that the root is slender, and about some foure fingers long.

Madwort.

I meet sometimes with many strange reports concerning this herb: and who more highly esteem it then the Alchymists? because it seemeth to be a thing very proper to them, and peculiar for their use in making of silver. The Italians call it, *Unshoe-the-horse*; because, if they tread upon it, they lose their shoes, and are freed from their locks and fetters.

This is an herb of a strange propertie. For it is an herb that unshoeth horses, and the like.

Oh Moon-wort tell us where thou hidd'st the smith,
Hammer and pincers thou unshoo'st them with.

Alas!

Du Bart.

Alas! what lock or iron engine is't
That can thy subtil secret strength resist,
Sith the best Farrier cannot set a shoe
So sure, but thou with speed canst it undo?

These secrets are strange, and somewhat are they strengthened by that which *Plinie* writeth of the wood-pecker, who, by the means of a certain herb, draweth the wedges out of the holes in trees, which shepherds have driven in: yea nails, or any other such like wedges, are fetched out by the virtue of this herb. Thus *Plinie* relateth, and he alledgeth one *Trebias* for his witnesse. See *Plin. lib.* 10. *cap.* 18.

Mr *Gerard* saith that it is sowen now and then in gardens, especially for the rareness of it; but the seed (saith he) is brought over either from Spain or Italie. But why may it not grow in other places? I remember what a friend of mine, of good credit, once told me, that his grandfather had a close, wherein it was a common thing to find their horses unfettered in the morning, although they were fast shackled over night: he named also the place; but I have now forgotten it. Here do I suppose might grow some of this herb, if there be any such to work these feats.

Good against the biting of a mad dog.

But to omit these strange narrations, let me acquaint you with that excellent propertie which *Galen* mentioneth; namely that if it be given to such as are enraged by the biting of a mad dog, it doth perfectly cure them. *Ger. Herb. pag.* 380. It is therefore also called *Madwort.*

Persley.

Parsley is an herb hot and drie; hot in the second degree, and drie almost in the third. There be many kinds of *Parsley*; and every one of them, according to the Greek, are called σέλινον, and in Latine, *Apium*, *Petrapium*, and the like. But know that there is *Apium hortense*, *garden Parsley*; and *Apium palustre*, *water Parsley* (which is *Smallage*) and *Apium montanum*, *mountain Parsley*;

Parsley; and *Petrapium*, or *Petroselinum Macedonicum*: which we in *England* call *stone Parsley*. Moreover, some say that *Alisanders* are called the *great Parsley*: and again, there is *Apium sylvestre, wild Parsley*.

How sick Harts cure themselves

Elianus reporteth, in the 13 book of his variable historie, that when the Harts stand in need of a remedie against any dangerous disease, they then use to eat wild *Parsley*.

Thyme.

There be generally two sorts of *Thyme*; the *wild* and the *garden Thyme*: and both are hot and drie in the third degree.

The wild is called in Greek ἵρυθ, in Latine *Serpillum, à serpendo*, from creeping: for so it grows, and creeps upon the ground from place to place.

The garden *Thyme* is called *Thymum durius*, and in Greek θύμ, which is a generall name for all kind of *Thyme*.

Good against the falling sicknesse, and troubled minds.

Bees are greatly delighted with this herb: and for such as are subject to the falling sicknesse, let them use to smell unto it. Also, it being made into powder, is good for such as be fearfull, melancholy, and troubled in mind, if it be taken in Mead, or a honied vineger which is called *Oximel. Ger.*

Water Pepper.

Arsmart, or *water Pepper* groweth almost in every watersh plash, or near unto the brims of rivers, ditches, and running brooks. In Greek it is ὑδροπίπερι, in Latine *Hydropiper* or *Piper aquaticum*. It is hot and drie of temper.

An herb which will help the tiring of a jade.

The leaves of this herb rubbed upon a tired jades back, and a good handfull or two laid under the saddle, doth wonderfully refresh the wearied horse, and causeth him to travell much the better: and note that this is to be done as soon as he beginneth to tire.

Peionie.

Peionie, in Greek παιονία, in Latine *Paeonia*, and *Dulcifida*, is an herb meanly hot and drie.

The

The black grains or seeds of the male *Paionie* bruised, and given to drink in mead or wine help melancholy dreams, cure the disease called *Ephialtes*, or *Nightmare*. A syrupe made of the flowers doth greatly help the falling sicknesse. And, as *Galen* hath found by sure and evident experience, (saith Mr *Gerard*) the fresh root tied about the necks of children, doth the like cure: but unto those that are grown, the said root must be administred in some syrupe or decoction, and taken inwardly, er else it helpeth not.

A medicine for the Mare, melancholy dreams, falling sicknesse, &c.

Spear-wort.

Spear-wort or *Bane-wort*, is an herb which if it be taken inwardly, is deadly. It groweth by ditches and river sides, and waterish places.

An herb which beggars use to blister their arms and legs withall.

Cunning beggars do use to stamp the leaves of this herb and lay them to their legs and arms, which cause such filthie ulcers as we daily see among such wicked vagabonds (for they will raise blains and blisters) and by this practice they hope to move the people to the more pitie. But let not the abuse extirpate the right use: for the learned affirm that it prevaileth much towards the drawing of a plague-sore from the heart and inward parts. In Greek it is called πλατύφυλλος, and in Latine *Ranunculus longifolius*. Moreover, it hath also the name of *Bane-wort*, because when sheep feed on it, they have their livers enflamed, their guts and entrails fretted and blistered by it. It is hot and drie in the fourth degree.

Sulphur-wort.

Sulphur-wort or *Hogs fennell*, in Greek is πευκέδανον, in Latine *Peucedanus*, or *Feniculum porcinum*. It is hot in the second, and drie in the beginning of the third degree; & is used with good successe against the ruptures & burstnings of young children; being very good to be applied to their navels, if they start out over much.

Good for young children.

Feverfew.

Feverfew, called in Greek παρθένιον, or else ἀμάρακον, and in Latine *Parthenium*, is hot in the third degree, and drie in the second.

This

This herb dried and made into powder, is good against a swimming and turning in the head, if some two drammes of it be taken with hony or sweet wine. Good against a *Vertigo*.

Also it is good for such as be melancholie, sad, pensive, and not desiring to speak. Good to drive away sadnesse.

Mouseare, or *Pilosella*, is hot and dry. The decoction or the juice of this herb is of such excellencie, that if steel-edged tools glowing hot be often cooled therein, it maketh them so hard that they will cut stone or iron, be it never so hard, without turning the edge or waxing dull. *Mouseare.* Good to harden edge tools.

Celandine, or *Swallow-wort*, in Greek is χελιδόνιον, in Latine *Chelidonium*. This herb is hot & dry in the third degree. Some say that it was thus named because (as * *Plinie* writeth) it springeth at the coming of the swallows, and withereth at their departure: which, I suppose, is false, seeing it may be found all the yeare. That therefore which he writeth in his 8 book, the 27 chapter, did rather occasion the name: For (saith he) the swallows have demonstrated unto us, that *Celandine* is good for the sight, because when the eyes of their young ones be out, they cure them again with this herb. Whereupon one writes out of *Schola Salerni*, thus, *Celandine*, * *Lib.* 25. *cap.* 8.

An herb there is takes of the Swallows name,
And by the Swallows gets no little fame;
For Plinie writes (though some thereof make doubt)
It helps young Swallows eyes when they are out.

Also, the root being chewed is reported to be good for the tooth-ach. Good for the tooth-ach.

Angelica is hot and dry in the third degree. It is an enemie to poysons, and cureth pestilent diseases, if it be used in time: yea the very root chewed in the mouth is good against infection. *Angelica.*

Contagious aire, ingendring pestilence,
Infects not those who in their mouthes have tane
Angelica, that happie counter-bane. Du Bart.

Dra-

Dragon.
Ill for women with child.

Dragon is an herb much like to *Angelica* in operation, if the distilled water be drunk: onely observe that the smell of *Dragon* flowers are hurtfull to women newly conceived with child. *Ger.*

Sowbread.

Sowbread, or *Swines-bread*, is an herb hot and drie in the third degree. In Greek it is κυκλάμινος, and in Latine *Tuber terra.*

A dangerous herb for women with child.

This herb is also dangerous for women with child either to touch, take, come near, or stride over it: For, without controversie (as Mr *Gerard* affirmeth) it maketh them be delivered before their times. He therefore, having it growing in his garden, used to set sticks or barres, that such a danger might be shunned. And this effect he attributeth to the extraordinarie naturall attractive virtue in it. *Dioscorides* and *Matthiolus* do not deny the said marvellous operation: and *Du Bartas* remembers it thus,

If over it a child-great woman stride,
Instant abortion often doth betide.

Lavender.

Lavender (as is supposed) is but the female plant of that which we call *Spike*: and being sweet in smell, it is used in baths and waters to wash the hands: in which regard it is called *Lavender* or *Lavander*, from the Latine word *Lavo, to wash.*

Leeks.

Leek is hot and dry: the Greeks call it πράσον, the Latines *Porrum*; according to which name, *Nero* the Emperour was called. For, because he took great pleasure in this root, he was named in scorn, and called *Porrophagus.*

The discommoditie of Leeks.

Leeks are not good for hot and cholerick bodies; because if they be eaten often, they ingender naughtie bloud, hurt the head, dull the sight, and make one to be troubled and affrighted with terrible dreams.

Onions,
Good against barrennesse and bleeding.

The like may be said of *Onions.* And yet (according to some) the water of the distilled roots, being done in June,

June, and drunk often by women that are barren, helpeth them: As also the same water helpeth the bleeding at the nose, if fine cotten be dipped in it, and put up into the nostrils.

And of *Onions* it is likewise written, that if they be bruised, and mixed with salt and hony, they will then destroy warts, and make them fall off by the very roots. *Good against warts.*

Also there is another propertie in *Onions*, which (when I had little else to do) I observed in this following Epigram, *A medicine to be used at the death of a shrew.*

He that a bad wife follows to the grave,
And knows not how, for joy, a tear to crave,
May Onions use to make him weep in shew;
For who can weep indeed to lose a shrew?

Garlick, called in Greek σκόροδον, and in Latine *Allium*, is hot and drie (as *Galen* writeth) even unto the fourth degree. It is called the countrey mans Triacle, and hath many good properties: And amongst other things, one thing very strange I find recorded of it; *viz.* that though the often eating of it do harm the whole and perfect sight, yet the moisture or juice infused into the eyes, doth comfort a dull sight. It is said that the strong smell of *Garlick* is put away by the chewing of *Cummin-seed*; or by eating a green bean or two after it. *Garlick.* *Good for the eyes.*

Also I find that if a woman doubt of her being with child, let there be set all night by her bed side some *Garlick*, and if she smell it not, then she may conclude that she hath conceived, or is with child. *How when a woman doubteth, she may know whether she be with child.*

Sleep not presently after the eating of *Radish*, for that will cause a stinking breath.

And withall let this be noted, that the *Parsnep* and *Carret* are hot and dry about the third degree. The *Turnep* is hot and moist: This is a root which is eaten *Parsnep.* *Carret.* *Turnep.* Swine eat no Turneps.

Skirret.
Artichoke.
Elecampane.

of men, but loothed of swine. The *Skirret* is moderately hot and moist. The *Artichoke* is hot and drie unto the second degree. The *Elecampane* is hot in the third, but drie in the second degree: and the chief virtues of it are to open the breast, or to help shortnesse of wind caused by tough flegme, which stoppeth the lungs. Also it openeth oppilations of the liver and splene, and comforteth the stomach, as saith *Schola Salerni*,

The virtues of Elecampane.

Enula campana, hæc reddit præcordia sana, &c,
Elecampane strenghtens each inward part,
Asswageth grief of mind, and cheers the heart.
A little loosenesse is thereby provoken;
It quelleth wrath, and makes a man fair-spoken.

Rape.
Tarragon.
Red Darnell.
Tobacco.

The *Rape* is also of an hot temper. And *Tarragon* is hot and drie to the third degree. The *Red Darnell* is hot also, and good to be drunk for pissing the bed.

The kinds of Tobacco, and where it was first found.

Of *Tabaco*, or (as it is commonly called) *Tobacco*, there be principally two kinds, saith Mr *Gerard*: one greater, the other lesse. The greater was first found in those provinces of *America* which we call the West *Indies*. The lesser comes from *Trinidada*, an island near unto the continent of the said *Indies*. To which some have added a third sort. And since the first discovery, there have been plantations made in other places.

The names of Tobacco.

The people of *America* call it *Petum*: Others *Sacra herba*, *Sancta herba* & *Sana sancta Indorum*. The reason being (as I take it) because when the *Moores* and *Indians* have fainted, either for want of food or rest, this hath been a present remedie unto them to supply the one, and help them to the other. And some have called it *Hyoscyamus Peruvianus*, or *Henbane* of *Peru*; which also Mr *Gerard* assenteth unto, verily thinking that it is a *Species Hyoscyami*, (for there be more kinds of *Henbane* then one) chiefly in regard of the qualitie; because it bringeth drowsinesse, troubleth the senses, and maketh a man, as it

it were drunk, by taking of the fume onely. Of some it is named *Nicotiana exotica*: & by *Nicholas Monardis* it is named *Tabaco*. Which said *Monardis* witnesseth that it is hot and drie in the second degree.

The quality of *Tobacco*.

The Physicall & chirurgicall uses of it, are not a few; and being taken in a pipe it helpeth aches in any part of the bodie; being good also for the kidneys by expelling wind. But beware of cold after it; neither take it wantonly, nor immoderately. And know that some commend the syrupe before the smoke: yet the smoke (say they) physically taken is to be tolerated, and may do some good for rheums, and the forenamed maladies: which, whilest some might cure, they make them worse. For we see that the use is too frequently turned into an abuse, and the remedie is proved a disease; and all through a wanton and immoderate use. For *Omne nimium vertitur in vitium.*

The virtues of *Tobacco*.

The use of things is many times turned into an abuse.

To quaffe, roar, swear and drink Tobacco well;
Is fit for such as pledge sick healths in hell:
Where wanting wine, and ale, and beer to drink,
Their cups are fill'd with smoke, fire, fume, and stink.

A lesson for swearing swilling swaggerers.

I remember an excellent salve which I am taught to make of green *Tobacco*: the receipt whereof is thus. Take the leaves of *Tobacco* two pounds, hogges grease one pound: stamp the herb small in a stone mortar, putting thereto a small cup full of red or claret wine: stirre them well together, cover the mortar from filth, and so let it rest untill the morning: then put it to the fire and let it boil gently, continually stirring it untill the wine be consumed; then strain it and set it to the fire again, putting thereto one pound of the juice of the herb, & of Venice turpentine 4 ounces; boil them all together to the consumption of the juice: then adde thereto two ounces of round *Aristochia*, or *Birthwort*, in

An excellent salve to be made with the green leaves of *Tobacco*.

most fine powder, with wax sufficient to give it a bodie: and so thou hast made an accurate salve for wounds, or for old filthie ulcers of the legs, &c.

The Indian women take no *Tobacco.*

The women of America (as *Gerard* mentions in his Herball) do not use to take *Tobacco*, because they perswade themselves it is too strong for the constitution of their bodies: and yet some women of England use it often, as well as men. And, questionlesse, those natives amongst whom it groweth, may take more at once then any one of us. It is said that Sir *Francis Drakes* mariners brought the first of this herb into England in the yeare 1585, which was in the 28 yeare of Q. Elizabeth, and 3 years before Tilburie camp.

When *Tobacco* came first into England.

Betonie.

Betonie, in Greek [illegible], in Latine *Betonica* and *Vetonica*, is hot and drie in the second degree.

This herb hath an infinite number of soveraigne virtues, being very good for the head; taken by some in a pipe, as *Tobacco*, and not seldome mixed with *Tobacco*: it helpeth also the bitings of mad dogs by drinking the juice or powder of it, and by binding the green leaves to the bitten place.

Plinie relateth a strange propertie pertinent to this herb: for, * saith he, if sell serpents be enclosed round about with it, they fall at such odds that they kill each other presently. This herb is also good to help women in their travail.

*Lib. 25. cap. 8.

And thus hitherto I have spoken of such parcels of dame *Tellus* store, as are onely hot of temper: unto which I might adde yet thousands more; whether they be such as are pleasant in shew, sweet in smell, delicate in taste, wholesome in operation, and the like: but the earth you know is large: and because I am to see something every where, I cannot stay long any where; lest the fourth day dawn, before the third be finished.

These

These herbs following are cold and moist.

IN the next place therefore I must bring to your admirations some other parcels of another temper, wherein you may likewise see Gods wisdome flourishing: for at which soever we look, there is a secret virtue that he hath infused into every one. In which regard divine *Du Bartas* thus,

Good Lord! how many gasping souls have scap't
By th'aid of herbs, for whom the grave hath gap't;
Who even about to touch the Stygian strand,
Have yet beguil'd grim Pluto's greedie hand!
Oh sacred simples that our life sustain,
And when it flies can call it back again!
'Tis not alone your liquour, inlie tane,
That oft defends us from so many a bane;
But even your savour, yea, your neighbourhood
For some diseases is exceeding good.

As for example, *Yarrow* (as most men say) when the leaves are green and chewed, doth help the tooth-ach. Also the leaves being put into the nose, do make it bleed, and is a remedie for the megrim, a pain in the head. It is an herb meanly cold in temper, and called in Greek ἀχίλλειος, in Latine *Achillea*, because it was first found out by *Achilles*, the disciple of *Chiron*, and with it he cured his wounds, *Vide Plin. lib. 25. cap. 5.*

Yarrow. For the tooth-ach, head-ach, &c.

Sowthistle is cold: the Greeks call it σόγχοι, the Latines, *Sonchi*. If it be given in broth, it increaseth milk in nurses breasts, causing the children nursed by them, to have a good colour and clear complexion.

Sowthistle. An herb for nurses.

Groundsell is said to have mixt faculties: for it cooleth, and withall digesteth. The Latines call it *Senecio*, because it quickly waxeth old: some also call it *Herbutum*.

Groundsell.

The leaves of this herb stamped and strained into milk, and drunk, are good against the Red-gum and frets in children.

Good against the frets, &c.

Comfrey.

Comfrey is somewhat cold of qualitie, and of a clammie and gluing moisture. It is highly commended of the learned for curing of wounds, especially of the intrals and inward parts, and for burstings and ruptures; insomuch that they affirm the slimie substance of the root made in a posset of ale, and given to be drunk, cureth the pain in the back gotten by any violent motion, as wrastling, and the like; to which some adde the overmuch use of Venus: for in foure or five dayes they are perfectly healed, although there be an involuntarie *fluxus seminis* gotten thereby. In Greek it is called σύμφυτον, in Latine *Symphytum*, and *Solidago*, or *Consolida major*.

Good for to cure any wrinch in the back, and the like grief.

Lilies.

The *Water-lilies* are also highly esteemed for their virtues in curing some of the like infirmities: for those which are skilfull do affirm that a decoction of the white or yellow *Water-lilie* made of the seeds, roots, or leaves, is singular good against nocturnall pollutions, caused by dreams, or otherwise. The same cure is also wrought by the green leaves laid upon the region of the back in the small, and tvvo or three times a day removed, and fresh applied. *Ger.*

Good against the same infirmities.

The Greeks call this *Water-lilie* νυμφαία, the Latines *Nymphaa*: because it takes such delight to grovv in the vvater.

Lettice.

Lactuca, in Greek θρίδαξ, and in English *Lettice*, is temperately hot and moist in the second degree.

It cooleth a hot stomach called heart-burning: and, in nurses that are hot and drie, it procureth milk; otherwise not. But it must never be eaten immoderately: for ancient Authours affirm, that generally it hindereth conception by wasting of sperm; and if it be not eschewed of vvomen vvith childe, it is a great means to make them bring forth children either raging in mind, or foolish in vvit.

Harm in too much *Lettice*.

Another hurt in *Lettice*.

Also, the use of *Lettice* is to be avoided of all that be short-

ſhort-winded, and ſpit bloud, or be flegmatick; they may not eat it often. Yet he that would live honeſtly unmarried, let him not refuſe this medicine ſet forth by *Dioſcorides* and *Galen* (as the Authour of the haven of health affirmeth) *viz.* let him bruiſe *Lettice* ſeeds, and often put them in his drink, &c.

Good to procure chaſtitie.

Purſlain is cold in the third degree, and moiſt in the ſecond. The Greeks call it ἀνδράχνη, the Latines *Portulaca*.

Purſlain.

The juice of this herb is good againſt fluxes; for it greatly ſtoppeth them. And note that the very herb holden under the tongue, putteth away thirſt and drineſſe.

Good againſt fluxes and thirſt.

Violet, in Greek ἴον, in Latine *Viola*, is cold and moiſt; being cold in the firſt degree, and moiſt in the ſecond. The leaves inwardly taken do greatly cool, moiſten, and make the body looſe or ſoluble: or outwardly applied, do mitigate all kind of hot inflammations.

Violets.

Good for coſtive bodies.

Theſe herbs following are cold and dry.

MAdder is called in Greek ἐρυθρόδανον, in Latine *Rubia*; and of its temperature the learned are not fully agreed: yet Mr *Gerard* ſaith it is cold and dry. It is good to give the decoction of the roots to burſten and bruiſed folks; which roots do alſo plentifully provoke urine: and (as ſome affirm) the very holding of the root or handling of it, dieth the handlers urine into a perfect red colour, appearing as if he piſſed bloud. Whereupon ſaith *Du Bartas*,

Madder.

Good againſt bruiſes.

A ſtrange property in Madder.

O wondrous Woad, which touching but the skinne,
Imparts his colour to the parts within!

But note that this muſt be underſtood of the root held long in the hand, and freſhly gathered: for being kept and tranſported, it hath not this virtue. *Plinie* attributeth more unto it: for, ſaith he, the onely ſight of this

herb healeth the Jaundise. But in this last propertie, let the reader use his libertie.

Willow-wort.

Willow-wort, or *Loose-strife*, is an herb cold and dry, whose first virtues were found out by *Lysimachus* the sonne of *Agathocles*, and one of *Alexanders* captains, from whom it is called *Lysimachium*, or *Lysimachia*. *Plinie* writeth of this herb that it is of such strange virtue that when * Oxen at the plough are striving and unruliе, let it be put into their yokes, and presently they are appeased and quieted. This herb is contrary to *Betonie*; which, in these two verses, you may remember,

* Plin. lib. 25. cap. 7.

Du Bart.

As Betonie breaks friendships ancient bands,
So Willow-wort makes wonted hate shake hands.

Shepherds purse.

Good against green wounds, fluxes of bloud, &c.

Shepherds purse, or *Bursa pastoris*, is cold and dry: the leaves bruised are good to heal green bleeding wounds: And also the decoction of it doth stop the lask, the spitting and pissing of bloud, and all other bloudie fluxes.

Housleek.

Sen-green or *Housleek*, is alwayes green, both in summer and winter: Whereupon it is called in Greek ἀείζωον, which is as much as *Semper vivens*, or *alwayes living*. It is cold in the third degree, and somewhat drying. The juice hereof taketh away corns from the toes and feet, better then any thing that you can easily get: Let them be washed and bathed therewith, and as it were day and night emplastred with the skin of the said *Housleek*, and you shall find remedie.

Good against corns.

Sorrell.

Sorrell or *soure-Dock*, in Latine *Acida*, in Greek ὀξυλάπαθον, is cold and dry; being cold in the third degree, and dry in the second.

The seeds of *Sorrell* drunk in grosse red wine, stop the lask and bloudie flux. Also if one fasting do chew some of the leaves, and suck down the juice, it marvellously preserveth from infections. *Eliots* castle of Health.

Good against the lask, and infection.

Plantain

Plantain, called in Greek ἀρνόγλωσσον, which is *Lambestongue*, and in Latine *Plantago*, is cold and dry in the third degree. *Plantain.*

The juice of *Plantain* drunk (like unto *Housleek*) stoppeth the bloudie flux, or spitting or pissing of bloud. And the leaves stamped and made into a Tansie, with the yelks of egges, stay the inordinate flux of terms, although it hath continued many years. *Ger. pag.* 341. But on the contrary, the decoction of *Cammomill* or *Germander*, made in wine, and drunk, voideth wind, and procureth them to flow. To stay fluxes. To provoke fluxes.

And thus also I have given you a taste of some cool as well as hot herbs. And in most of these, as in such other things of the same nature, I must confesse, that as I have seen a description of the world set forth by such whose reading was their furthest travell; so, out of good Authours, and skilfull Herbalists, I have both learned and taught these secrets. Unto which I have yet a few more that I intend to adde; and because these are the most strange, I have reserved them unto the last place.

These herbs which follow, are herbs of more then ordinarie properties.

As first the noble * *Nepenthe*, an herb which being steeped and drunk in wine, expelleth sadnesse. * *Plin. lib.* 25. *cap.* 2.

2. Then is there the herb *Hippurin*, or *Hippice*, of which *Plinie* * writeth that it is admirable in stenching bloud, insomuch that the cure is performed by the very touch of it; being also very good to keep one from hunger and thirst, while it is kept in the mouth. * *Lib.* 26. *cap.* 13.

3. Also, there is *Nyctilops* or *Nyctegretum*, an herb which in the night * shineth afarre off: and, above all other creatures, at the first sight it scareth Geese. * *Idem lib.* 21. *cap.* 11.

4. *Pythagoras*

* *Plin. lib. 24. cap. 17.*

4. *Pythagoras* telleth of the herb * *Callicia*, which will turn water into ice.

5. *Ophiusta* is an herb growing in *Ethiopia*: it is of a wannish colour, dangerous to be looked on: and being drunk, it doth so terrifie the mind with a sight of angry and dreadfull serpents, that through the fear of them men have * sometimes killed themselves.

* *Idem ibid.*

6. *Hemlock* (as some relate out of *Galen*, in his book *De temperamentis*) is meat to storks, and poyson to men.

7. *Sardonia*, or *Crow-foot* (as some write out of *Solinus*) is an herb which moveth laughter.

A bleeding herb.

8. Upon a mountain of *Cypres* called *Arcadie*, is an herb or plant growing, which if a man cut, there issueth a liquour like warm bloud: if with this bloud, thus warm, one man should touch another, he would love him affectionately whom he toucheth. Contrariwise, if the bloud be cold, the touch will ingender hatred. My Authour calleth this plant, *Flabia*. See *Du Bart*. Summarie.

9. Moreover, in the same Authour I find (as he hath it from one *Rhamnusius*, in his Navigations) that in the island called *Australle*, there is an herb found, upon which whosoever lieth down, he is first taken with an heavinesse of the head, then with sleeping, and consequently with death.

* *Lib. 24 cap. 17.*

10. Magicians make use of the herb *Anacrampseros*, which (as I find in * *Plinie*) by the very touch thereof causeth love to grow between man and man, abolishing all former hatred.

11. The like is reported in a manner of the herb *Sowbread*, which being made into little flat cakes, and taken inwardly, is a good amorous medicine, and will make one in love. *Ger.*

12. Also they report, saith *Dioscorides*, that the herb *Snap-draggon* or *Calves-snout* being hanged about one, preserveth a man from being bewitched, & maketh him gracious

gracious in the ſight of the people. *Gerard. ex Dioſcor.*

13. Enchanters alſo make great brags of the herb *Ethiopis* (which, I think, ſome call by the name of *Moly*)

14. And of the herb *Achimedis* : the firſt whereof being caſt into rivers, will drie them up; or being applied to any thing lockt or ſhut, will preſently open it : the other being caſt into an armie in the time of battel, cauſeth the ſouldiers to be in fear, and runne away. Thus ſay ſome. Neither hath *Plinie* forgotten theſe two laſt herbs : but he mentions them with a kind of deriſion, as in the 26 book and 4 chapter of his naturall hiſtorie is apparent ; where he wondereth why enchanters would not make uſe of them in time of danger and extremitie. And for mine own part, this I cannot but ſay, that it is great pitie the ſecrets of nature ſhould be ſoiled by infamons magick, and by the ſuperſtitious ignorance of ſorcerers.

It is pitie that natures ſecrets ſhould be ſoiled by magick.

15. Unto theſe, *Apollodorus* hath added the herb *Æſchynomen*, which draweth in the leaves when the hand of any one approcheth to touch it.

16. Like unto which is the herb *Sentida*, growing in * *India*: for if any one come near and touch it, or throvv ſand, or any thing elſe upon it, preſently it becometh as if it were withered, and cloſeth up the leaves ; ſo continuing as long as the man ſtandeth by : but ſo ſoon as he is gone, it openeth freſh and fair: and touching it again, it withereth as before.

* *Purchas Pilgrim. part. 1. lib. 5. cap. 12.*

Theſe, you ſee, are rarities : and being now ready to paſſe away from them, I ſhould come to ſpeak ſomething of grain ; as *wheat, rie, barley, lintels, oats, peas, beans, rice*, with ſuch other like ; and gladly would I do it, but that (methinks) I am called another way: for lo I have diſcovered the tops of yonder trees ; and one by one, I mean to view them.

Here the Authour beginneth to ſpeak of trees.

Vitex,

Agnus castus.

Vitex, or the *chaste tree* (which the Greeks call ἄγνος, and λύγος, because, saith * *Plinie*, certain matrons among the Athenians, desirous to live chaste, did lay the leaves of it in their beds under them) is called in the Latine *Salix marina*, or *Salix amerina*, or *Piper agreste*, or *Agnus castus*. And, as *Plinie* writeth, it is of two kinds; the greater, and the lesser. The first groweth up much like a willow tree: but the other brancheth out and spreadeth more, having vvhiter and dovvnier leaves then the former. Our * countreyman, and an excellent Herbalist, saith that it groweth up after the manner of a bushie shrubbe or hedge tree, having many tvviggie branches, very pliant and easie to be bent like unto the vvillow: the flovvers are of a light blevv colour, and very svveet in smell; the leaves long and narrovv; and the fruit small and round like unto the grains of pepper. And note that the flovvers grovv at the uppermost end of the branches, clustering close together.

* *Lib. 24. cap. 9.*

Ibid.

* Mr. *Gerard.*

Some say that it is a plant hot and drie in the second degree; others name the third.

It is a singular medicine for such as would live chaste, in vvhat sort soever it be taken, vvhether in povvder, or decoction, or the leaves vvorn about the bodie.

Also it driveth avvay vvindinesse of the stomach, openeth and cureth the stoppings of the liver and splene, vvith sundry such other needfull cures.

Willow.
From whence came the first use of willow garlands.

Willow is of a much like nature; and therefore it is yet a custome, that he vvhich is deprived of his love, must vvear a vvillovv garland. Also the green boughs vvith their leaves may vvell be brought into chambers, and set about the beds of those vvho are sick of agues; for they do mightily cool the heat of the aire; vvhich thing cannot but be a vvonderfull refreshing to the sick patient.

Tamarisk.
Good for the splene or milt.

Tamarisk is a little tree vvell knovvn; the decoction of vvhose branches being drunk in vvine, and a little vineger,

vineger, is of great virtue against the hardnesse or stopping of the splene or milt: for this tree doth by nature so waste the milt, that swine which have been daily fed out of a vessel made thereof, have been found to have no milt at all.

Rose is cold in the first degree and drie in the second, somewhat binding, especially the white Rose. The red is lesse cold, more drie, &c. As for the damask and musk Rose, it is hot, and moist withall. The damask water is sweetest; but the red is wholesomest. And of the red Rose leaves a conserve may be made, which is good, not onely to cool, but also to comfort the principall parts of the bodie, *viz.* the head, heart, stomack, liver, splene, and reins. Thus you may make it. Take the buds of red Roses somewhat before they be ready to spread; cut the red part of the leaves from the white, shake out the yellow seeds: then take the red leaves and beat them very small in a stone mortar with a pestle of wood; and unto every ounce of Roses put three ounces of sugar, by little and little, in the time of the beating, and beat them all together untill they be perfectly incorporated: then put it in a glasse or gallipot; stop it close, and set it in the sunne for a season, and it is made. And know that it will remain in full virtue for a yeare or two, but then it decayeth.

Rose. The temper and virtue of Roses.

Conserve of Roses, what it is good for.

How to make the conserve.

Myrtle is a little low tree growing in some hot countreys, having small dark leaves, bearing berries which are of a binding nature, and good to stop any issue of bloud. This is a tender plant; not able to endure any cold; and (as Authours affirm) it was wont to be worn of the Romane captains garland-wise in triumph; namely then, when they had obtained any victorie without slaughter of men. Also in times past this tree was consecrated to *Venus*: and thereupon I find in *Plinie*, that amongst the Romanes there was an altar belonging to *Venus*, which they

Myrtle. Good against fluxes.

Myrtle garlands.

they call by the name of *Murtia*. The said Authour also affirmeth, that before pepper was found out, the myrtle berries served in stead thereof, See *Plin. lib.*15. *cap.*29.

Myrtle berries used for pepper.

Ebone.

A smoke good for the eyes.

Ebone is a tree growing in India and Ethiopia, in taste being sharp and biting. If it be burnt, it yields a sweet smell, the smoke whereof is not offensive, but good against many diseases of the eyes: as also the green wood is so full of sap, and withall so fattie, that it will flame like a candle. Some have said that it bears neither fruit nor leaves; but this is a false opinion, as they have witnessed who have seen the tree, and taken the true picture of it. The outward parts are white, but within it is black. That which groweth in India, is not in such estimation as the Ethiopian *Ebone*; for it is spotted with white and yellow.

Sethim.

Sethim is a kind of tree something like a *White-thorn*; the timber whereof never rotteth. Of this tree, Noah, according to Gods command, made the ark; as we reade in Genesis.

Palm.

Palm, or *Date* trees, are both one. This tree groweth plentifully in Egypt, and other parts of Africa; but those which are in Palestine and Syria are the best: they grow likewise in most places of the East and West Indies.

A token of victorie.

The branches of this tree were wont to be carried as a token of victorie, because they are of this nature, *viz.* that they will shoot upward, though oppressed with never so great weight: neither do the leaves of it ever fall.

Latona delivered by the *Date*.

Elianus remembreth another propertie; for (saith he) the report runneth thus, that in *Delus* the Olive tree and the Date tree flourish most fruitfully, which when *Latona* had touched, she was suddenly disburdened of childebirth, whereas before she could not be delivered. *Elian. lib.* 5. Also they grow by couples, male and female: but the female is onely fruitfull.

Plane.

The *Plane* tree, called *Platanus*, is a spreading tree with

with broad leaves: in times past it was greatly esteemed in Italie for the shadow thereof; insomuch that (as *Plinie* reporteth) they often bedewed it with wine to make it grow. The old Romanes were vvont to banquet much under these trees. And there is, saith *Plinie*, no greater commendation of this tree, then that it keepeth away the sunne in summer, and entertaineth it in winter,

A banqueting tree.

We reade of *Xerxes* King of Persia, that he was strangely enamoured on this tree, having it in such singular admiration that he became a servant to it. For in Lydia (as *Elianus* * writeth) when *Xerxes* happened to see a tall and loftie fair *Plane* tree, he made a whole dayes tarriance by it; and, no necessitie constraining him so to do, he pitched his pavilions and tents in the void and emptie places round about the same. He also hanged precious jewels of great value upon it, adorning and beautifying the boughs and branches with chains of gold, with bracelets and tablets, with spangles and such like costly things, yielding thereunto great worship and reverence; appointing also an overseer to keep, preserve, and defend the same from all casualties. This was a strange crotchet; and little or nothing the better was the poore tree for all this love and braverie.

* *Variab. hist. lib. 2.*

Pepper (whereof there are divers sorts) groweth at the foot of other trees, climbing upon them like to ivie, and is in bunches like grapes.

Pepper.

Ginger groweth like young reeds, with a root like a lilie: it is plentifull in *Malabar*, or *Malavar*, a province in India *intra Gangem.*

Ginger.

Cinnamon is the inner bark of a tree as big as an olive; with leaves like bay leaves, and fruit like an olive: the drying of the bark maketh it roll together. Within three years the tree yieldeth another bark, as before. They of *Ormuz* call it *Darchini*, that is, *wood of China*: and selling it at Alexandria, they call it *Cinnamomum*, which

Cinnamon.

which is, *quasi Amomum ex Sina delatum. Purch. ex Garcia ab horto.*

Nutmegge and Mace. The *Nutmegge-tree* is like a peach or peartree, and groweth most in *Banda* an island in Asia, and in *Java.* The fruit is like a peach, the inner part whereof is the *Nutmegge*, which is covered and interlaced with the *Mace.* For when the fruit is ripe, the first and outermost part openeth, as it is with our walnuts; then the *Mace* flourisheth in a fair red colour, which in the ripening becometh yellow.

Cloves. *Cloves* grow in the *Moluccos* on trees, like bay-trees, yielding blossomes, first white, then green, afterwards red, then hard; and this hard thing is the *Clove.* When they be green they yield the pleasantest smell in the world. And (as it is reported) being ripe they are of such an extraordinary heat and drinesse, that in two dayes they will suck out and drie up such vessels of water, as shall happen to stand in the same room where they are. These spices and drugs, with many other, are the fruits of India.

Cypresse. The *Cypresse* is a tree growing on drie mountains, and most commonly in hot countreys. It is very tall, and the timber thereof is yellowish and of a pleasant smell, especially being set near to the fire; and of such durable nature, that it doth neither rot nor wax old, nor yet cleaveth or chappeth it self. See *Plin. lib. 16. cap. 33. & 42.*

Pine. The *Pine* is a tree of the same nature, not subject to worms or rottennesse, and therefore much used, where it groweth, to make ships. The leaves are hard-pointed, sharp and narrow, continuing green all the yeare; and the shadow thereof* will not suffer any plant to grow under it.

* *Plin. lib. 17. cap. 12.*

Cedar. *Cedar* is a tall great tree which groweth in Africa, and Syria; many of them upon mount Libanus. They be straight

ſtraight and upright like the Firre-tree: their leaves are ſmall, thick, and of a ſweet ſmell. This tree hath fruit on it all times of the yeare, which fruit is like to that of the Firre & Pine-tree, but greater and harder: and at this day (as ſome affirm) there are found upon mount *Libanus*, *Cedars* planted by King Solomon: the truth of which I vvill not ſtand to juſtifie.

Terebinth is a tree from vvhence Turpentine iſſueth. *Terebinth.*

Picea is a tree that droppeth pitch; it groweth in Greece, Italy, France, Germanie, and all the cold regions even unto Ruſſia. It remaineth alvvayes green like unto the *Pine*; and, by ſome, is ſuppoſed to be a wild kind of *Pine*: eſpecially ſeeing the *Pine* affordeth Roſin, Pitch and Tarre. Yet ſome attribute Pitch to the great *Cedar*, Roſin to the wild *Pines* chiefly, and Tarre to the *Pine* called the *Torch-Pine*. *Picea.*

There is a tree in India, called the Indian *Coquo*, or *Cocus*, being the moſt ſtrange and profitable tree in the world; of which in the iſlands of *Maldiva* they make and furniſh vvhole ſhips: ſo that (ſave the men themſelves, * ſaith one) there is nothing of the ſhip or in the ſhip, neither tackling, merchandiſe, or ought elſe, but vvhat this tree yieldeth. It groweth high and ſlender, the wood is of a ſpungie ſubſtance, eaſie to be ſevved, vvhen they make veſſels thereof, vvith cords made of *Cocus*. It hath a continuall ſucceſſion of fruits, and is never vvithout ſome: they grovv like a kind of nut, vvhich is of a very large ſize, having tvvo ſorts of husks as our vvalnuts; the uppermoſt vvhereof is hairy like hemp, and of this they make cordage; and of the next they make drinking-cups. When the fruit vvithin theſe ſhells is almoſt ripe, it is full of vvater, vvhich, as it ripeneth, changeth into a vvhite harder ſubſtance: at the firſt this liquour is ſvveet, but vvith the ripening grovveth ſovvre. The tree affords a very medicinable juice; and, if it ſtand one houre *Cocus.*

*Mr Purchas pilgrim. part. 1. lib. 5. cap. 12.

houre in the ſunne, it is good vineger; but diſtilled, it may be uſed in ſtead of wine or *Aquavitæ*. There be wayes alſo to make ſugar of it, and of the meat in the nut dried they make oyl: Of the pith or heart of the tree they make paper: of the leaves they make coverings for their houſes, tents, mattes, and the like. Nay, their apparell, firing, and other neceſſary commodities, they gather from this tree. Thus ſome. Or, according to others, it is thus deſcribed. In the iſle of *Zebus* there is a fruit which they call *Cocos*, formed like a *Melon*, but more long then thick: It is incloſed with divers little skinnes, ſo ſtrong and good as thoſe that environ a Date ſtone. The iſlanders make thread of the skinnes, as ſtrong and good as that which is of hemp. The fruit hath a rinde like a drie Gourd, but farre more hard; which, being burned and beaten to powder, ſerveth for medicine. The inward nut is like unto butter; being both as white, and as ſoft, and beſides that, very ſavoury and cordiall. They make uſe of this fruit alſo in divers other things. For if they would have oyl, they turn and toſſe it up and down divers times: then they let it ſettle ſome few dayes, at which time the meat will be converted into a liquour like oyl, very ſweet and wholeſome, wherewith they oftentimes anoint themſelves. If they put it into water, the kernell is converted into ſugar; if they leave it in the ſunne, it is turned into vineger. Towards the bottome of the tree they uſe to make a hole and gather diligently into a great cane the liquour that diſtilleth, which amongſt them is of as much eſteem as the beſt wine in theſe parts: for it is a very pleaſant and wholeſome drink.

Arbore de rais.

There is alſo among the Indians a tree called *Arbore de rais*, or *the tree of roots*, called alſo the *Indian fig-tree*, and by ſome affirmed (with more confidence then reaſon, ſaith one) to be the tree of Adams tranſgreſſion. It groweth

groweth out of the ground, as other trees, and yieldeth many boughs, which yield certain threads of the colour of gold, which growing downwards to the earth do there take root again, making as it were new trees, or a wood of trees, covering sometimes the best part of a mile.

There is also another tree which some call the *Indian mourner*, or *Arbore triste*, the sad and sorrowfull tree. It hath this propertie, that in the day time and at sunne-setting you shall not see a flower on it: but within half an houre after, it is full of flowers, which at the sunne-rising fall off, the leaves shutting themselves from the sunnes presence, and the tree seeming as if it were dead. The Indians have a fable of one *Parisatico*, who had a daughter, with whom the sunne was in love; but lightly forsaking her, he grew amorous of another: whereupon this damosel slew her self, and of the ashes of her burned carcase came this tree. A prettie fiction this: *Ovid* himself hath not a better. *Arbore triste.*

In the island of *Hierro* (being one of the seven islands of the *Canaries*) is a tree which distilleth water incessantly from the leaves thereof, in so great abundance, that not onely it sufficeth those of the island (for there is no other water in the island) but also might furnish the necessary uses of a farre greater number of people. This strange tree is alwayes covered with a little mist, which vanisheth by degrees, according as the sunne sheweth himself. *A weeping tree.*

When the Spaniards (saith my Authour) took upon them to conquer this isle, they found themselves almost discomfited, because they saw neither fountains, springs, nor rivers: and enquiring of the islanders where they had their water, they answered that they used none but rain-water, & in the mean time kept their trees covered, hoping by this subtiltie to drive the Spaniards out of the

isle again. But it was not long before one of their women, entertained by a Spaniard, discovered the tree with the properties of it; which he at the first held for a fable, untill his own witnesse saw it was true; whereupon he was almost ravished with the miracle: but the woman was put to death by the islanders, for her treacherie.

Barnacle tree.

In the north parts of Scotland and in the islands adjacent called *Orchades*, are certain trees found whereon there groweth a certain kind of shell-fish, of a white colour, but somewhat tending to a russet; wherein are contained little living creatures: For in time of maturitie the shells do open, and out of them by little and little grow those living creatures; which falling into the water when they drop out of their shells, do become fowls, such as we call *Barnacles* or *Brant Geese*: but the other that fall upon the land, perish and come to nothing. Mr *Gerard* affirmeth that he hath seen as much in *Lancashire*, in a small island which is called the *Pile of Foulders*: for there be certain boughs of old trees, and other such like rubbish cast up by the sea, whereon hangeth a certain spume or froth, which in time breedeth unto a shell: out of which by degrees cometh forth a creature in shape like a bird; sending out first a string or lace, as it were, of silk finely woven, and of a whitish colour; then follow the legs, and afterwards more and more, till at the last it hangeth by the bill: soon after it cometh to maturitie and falleth into the sea, where it gathereth feathers, and groweth to a fowl bigger then a mallard, and something lesse then a goose, being somewhat coloured like to our mag-pies. This Mr *Gerard* testifieth to be true upon his own knowledge; as in his Herball is apparant.

And thus (gentle reader) I would here end, not onely this Chapter and Section, but also the first part of my book,

book, were it not that I have a desire to speak a word or two of things growing under ground, and within the earth: which, as briefly as I can, shall be handled in the following Appendix.

An Appendix to the two former Sections; discoursing somewhat concerning Metalls, and such like things as are under ground.

IN the second dayes work I had occasion to speak of Fiery, Aierie, and Watery Meteors: all which by the Philosophers are named bodies imperfectly mixt, being but a little durable. And now, being to speak of things under ground, I am come to bodies more perfectly mixt, and of a longer continuance, because they consist of a more solid and constant concretion of Elements.

Their names in generall, are either *Mineralia*, Mineralls; *Fossilia*; or *Metalla*.

They are *Mineralia*, because they are generated in Mines; that is, in the veins, pores, and bowells of the earth.

They are *Fossilia*, from *Fodio, to dig*, because they are digged out of the earth.

And they are *Metalla*, *Metalls*, from the Greek word μεταλλᾶν, which is *to search*, or *find out*; because, with much labour and cost they are sought out of the veins and bowells of the earth.

That name which I insist upon, is this last: And that the kinds of Metalls may the better be remembred, this short table would be observed.

- Metalls are either
  - Principall — which are of themselves; as Sulphur and Mercurie, being (as it were) the father and mother of all metalls.
  - Lesse principall
    - derived from the principall
      - more pliable
        - pure
          - more
            - Gold.
            - Silver.
          - lesse; having either more
            - Brimstone, or
            - Quicksilver.
      - lesse pliable
        - Hard stones
          - common
            - solid
              - shining.
              - not shining.
            - full of pores, as the Pumex and Tophus.
          - precious
            - more noble, shining more.
            - lesse noble, shining lesse.
        - Brittle, or of a friable nature; easie to be brought into crumbes: And these are all kinds of precious earths, and sucks of the earth: as *Terra Lemnia, Samos, Bitumen, Sal*, &c.

Of these kinds I purpose to speak a word or two, which shall be as it were to explain the table to such as know it not.

The first, or principall metalls, are *Sulphur*, and *Mercurie*: These are of themselves, because other metalls do not help to make them, but they help to make other metalls.

Brimstone. *Sulphur* or *Brimstone*, is said by some to be the fat of the earth with fiery heat decocted unto his hardnesse; which is the cause that it so speedily is enflamed, and burneth even in water.

Or thus. *Sulphur* is a metallick substance or matter, consisting of a more subtill Exhalation, fat and unctuous, shut up within the veins of the earth. It will burn sooner then the fat of beasts: for although it be fatter then *Brimstone*, yet it is farre colder.

Mercurie

Mercurie or *Quicksilver* is a slimie water, mixt with a pure white earth; which metall, for the matter whereof it doth consist, is thin, cold and heavie. *Quicksilver.*

Or thus, *Quicksilver* is a metallick matter, consisting of a waterie vapour, more subtil then ordinary, which is mixed with earth to conglutinate or knit it together; and, by the heat of *Sulphur*, it is digested into what it is. It pierceth metalls, because of the extream thinnesse; which, together with the heat of it, makes it be in continuall motion: and the motion, by a Metaphor, causeth it to be called *Quicksilver*. Moreover, it is also called *Mercurie*, because as Mercurie is joyned to all the Planets, so this to all metalls: or as Mercurie is moved many wayes, so this is apt for any motion.

The lesse principall metals are derived from these first. I call them lesse principall because they are not of themselves, but produced by the help of the other two. Metalls derived from the two first.

These I divide into two sorts; the pliable, and the lesse pliable.

Pliable metals are pure: and that, either more or lesse. The more pure, are *Gold* and *Silver*. Pliable metalls of the purest kind.

Gold is the onely purest of all metals, and is composed of a most pure red *Sulphur*, and of the like *Quicksilver*: they are red, but not burning. This metall is onely perfect; all other be corruptible. It is perfect, because it is concocted with sufficient heat, and mixture of *Sulphur*: whereas all other metals, either are not so well concocted, or else they have not the due quantitie of brimstone: and (as it is affirmed by the Alchymists) because nature in all her works seeketh the best end, she intendeth of all metals to make gold: but being hindred, either for want of good mixture, or good concoction, she bringeth forth other metals; although not so precious, yet in their severall uses, every way as profitable, if not more: for it is scarce a question * whether there be more *Gold.* Moores *Utopia.*

use to the necessitie of mans life, in Iron and Lead, then is in Gold and Silver. Gold never rusteth, both because of the purenesse of its parents, free from poisonous infection; and also because it is so solidly composed that no aire (which causeth all things to corrupt) can be received into it.

This perfection, together with the rarenesse, and beautie of it, hath caused fond mortals to doat so much upon it as they do. Nay, will not one pound or ounce of this go further then ten, either ounces or pounds of honestie? The Poets saying agreeth to it,

Aurea nunc verè sunt secula, plurimus auro
Venit honos.

This is the golden age, not that of old:
For now all honour's to be bought with gold.

And hereupon I think it is, that most men dispraise this metall, and yet but few who would not have it.

Diversas hominum videam cùm sparsa per artes
Ingenia, est cunctis ars tamen una viris.
Omnibus idem animus gratos sibi quarere nummos:
Omnis inexhaustus undique poscit opes.

When I behold the wits of men inclin'd
To divers arts, I all of them do find
In this one art to meet; they shun no pain
Wish'd wealth to heap up, and augment their gain.

Nay, they are not common fetches and plots, but strange and bloudie damned practises which are often used to get and obtain the riches of the world. Which *Ovid* could discern a long while since; and therefore he saith,

Metamorph. lib. 1.

Effodiuntur opes irritamenta malorum:
Jámque nocens ferrum, ferróque nocentius aurum.

Riches (those fond enticements unto ill)
Are digged up; and iron which doth kill.
But Gold it is which doth more harm to men
Then iron blades, though steel'd, though sharp, though keen.

Or,

Or, as another saith,

Aurum, destructor vitæ, princépsque malorum,
O quàm difficiles nectis ubique dolos !
O utinam natum nunquam mortalibus esses,
Dulcia suppeditas quæ nocumenta viris !

Gold, lifes destroyer, and of mischiefs chief,
Oh what strait wiles dost thou knit, past belief!
Would thou hadst ne're been born to mortall wights,
Sith harm to men rests in thy false delights !

These are the complaints. But it is neither in Gold nor Iron or the like, that these evils rest ; the causes of ill ought rather to be imputed to the devil and wicked men. For true it is,

All goods are good to good men that well use them,
But they are bad to fools who do abuse them.

And thereupon saith *Du Bartas*,

I know to man the earth seems (altogether)
No more a mother, but a step-dame rather ;
Because (alas) unto our losse she bears
Bloud-shedding Steel, and Gold, the ground of cares:
As if these metals, and not mans amisse,
Had made sinne mount unto the height it is :
To pick a lock, to take his neighbours purse,
To break a house, or to do something worse ;
To cut his parents throat, to kill his prince,
To spoil his countrey, murder innocence.
For, as a cask, through want of use grown fustie,
Makes with his stink the best Greek malmsey mustie:
So Gods best gifts, usurpt by wicked ones,
To poison turn through their contagions.

What pains do not men take to winne gold ; every man hath one way or other to hunt after it : but the Alchymist, despising all other wayes, as slow, unnaturall, and unprofitable, laboureth, either to help nature in her work

work, as of unperfect metals to make perfect, or else to force nature to his purpose, by his quintessences and Elixers; so that what by purging, what by concocting, what by mixing of Sulphur and Quicksilver, and much other like stuffe, at length he turneth the wrong side of his gown outward, all the teeth out of his head, and his bodie from health to a palsie, and then he is a Philosopher, and so he must, nay, will be called.

It is said of Gold that it waxeth cold towards daylight: insomuch that they who wear rings of it, may perceive when the day is ready to dawn.

Silver.

Silver is the most pure metall next unto Gold: it hath an indifferent good concoction, but it wanteth sufficient heat in the mixture, and thereupon it looketh pale. It is a metall begotten of pure white Mercurie, and of clear white Brimstone or Sulphur.

Pliable metalls lesse pure.

The lesse pure pliable metalls, consist some of them of more Brimstone; some, of more Quicksilver: neither are any of these two so pure, as those in the mixture of Gold and Silver.

Brasse and *Copper.*

Brasse is an impure metall, consisting most of a red and thick Sulphur, and of a little Quicksilver something impure: that which cometh from *Cyprus* is called *Copper*, and is the purest, as being of best digestion, and nearest unto Gold; **Brasse*, *Latten*, & such like, being no other then divers kinds of *Copper*. In ancient time, this metall was in greater esteem then Iron: for they did not onely make their armour of it, but their bucklers also and their lances; because they would not be worn, either with age or use.

*Some say Brasse is not naturally, but artificially made.

Copperas.

Copperas is a mineral of a near nature unto Brasse or Copper: it is said by some to be mixed of humours strained by drops into small holes. And perhaps it is nothing else but the more raw and impure substance of that which is the matter of Copper, with lesse Quicksilver in

in it, and that alſo of a baſer qualitie. It is hot and drie in the fourth degree, vehemently binding, being of great force to ſeaſon and preſerve raw fleſh, (as ſome affirm) and is alſo good to beget ſound fleſh in feſtered ſores, and to ſtench bloud. It is of a green, yellow, and a skie colour : but the beſt hath white ſpots in it. See more afterwards in *Vitriol.*

Iron is a common metall, neceſſary for the uſe of mans life, engendred of a moſt impure Quickſilver mixed with a thick Sulphur impure and aduſt. Or thus; It is an impure metall conſiſting of much crude, earthie, aduſt Sulphur, and a modicum of filthie and bad Mercurie. This (ſaith the Philoſopher) although it be hard, yet by daily uſe it is worn and waſted : the reaſon being in regard that it hath in it leaſt of Mercurie, and moſt of an earthie Sulphur. The quenching it in water makes it harder and harder : but if it be quenched in the juice of bean-ſhells or mallows, it becometh ſoft : and ſo alſo doth the often heating it and cooling it without quenching. *Plinie calleth it *optimum peſſimúmque vitæ inſtrumentum, the beſt and worſt inſtrument of life.* *Iron.* How to ſoften Iron. *Lib. 54. cap. 14.

Steel is a kind of Iron, but the pureſt and the hardeſt; or Iron refined. Naturall ſteel, which we call *Chalybs*, in times paſt was gotten out of a place in Thracia, where the people called *Chalybes* inhabited: their uſe was to go naked, and digge this metall out of the earth. *Steel.*

Metalls conſiſting moſt of Mercurie, are theſe ; *Lead*, and *Tinne.*

Lead is a raw and indigeſted metall, but of better digeſtion then commixtion : for it is mixed with a groſſe earthie ſubſtance, which cauſeth it to be in colour ſo black, and ſo ready to foul. It is begotten of much unpure, thick, and droſſie Mercurie; and by refining is made whiter. The kinds of this are varied by reaſon of the matter whereof it conſiſteth, and by reaſon of the heat *Lead.*

by

by which it is decocted: and thereupon it comes to passe that we have one sort which we call *Black-lead*; another farre whiter and clearer, as being better concocted, and more purely composed. It is of a cold and binding nature; and if it lie in the wet, moisture will increase the weight. England hath store of it.

Tinne.

Tinne, whereof great plentie also groweth in the West parts of England, in beautie and colour cometh neareſt unto Silver; and of Silver wanteth nothing but soliditie and hardnesse. Some think that it is composed of Silver and Lead: but the more common opinion is, that the greatest part of it is Mercurie, white without, and red within, having a portion also of Brimstone or Sulphur not well mixed, being as it were Lead whited with Silver: for it is a raw and undigested metall, very porous and uncompact, which causeth it to crash when it is either broken or bitten. And thus farre of metalls pliable.

Metalls lesse pliable which are hard.

The lesse pliable (as I shewed in the table) are either hard, or brittle; and cannot be easily hammered, wrought or melted to a desired form.

Stones.

The hard ones, are all kind of stones. And of stones, together with bodies friable or brittle, it is doubted whether they be in the number of metalls or no; because there is great difference in the matter of their composure, &c.

To which it is answered, that although they be not in the number of such kind of metalls as are pliable, and will melt; nor yet abound with that matter of mixture which they do: nevertheless they may bear the name of metalls; according to that generall name specified in the derivation of the word *Metalla*. And in that regard I made a difference of metalls, and drew them out in the former table. Wherefore I proceed: and following them who derive stones after this manner, I say that stones

ſtones are bodies perfectly mixt, without life, hard, of a drie and an earthie exhalation, mixed with a certain unctuoſitie; and by the durance of time, together with the force of heat and cold, and a minerall virtue, conglutinated or knit together. Or thus; they be engendred of a waterie moiſture, and fat earth mixed hard together. By which it appeareth that the matter of ſtones is a watrie humour, and a thick unctuous earth: which is not ſo to be underſtood as if the other two elements were ſeparated from their mixture; but becauſe they have not ſuch precedencie as the former. And for their efficient cauſes beſides the minerall virtue, it is ſaid to be heat and cold. Heat bringeth the ſlow humid unctuous matter through the thin parts of the earth (as the Philoſophers affirm) and cold condenſeth it, and makes it thick. They live not with a vegetative life, as plants and trees which have their nouriſhment from within; but their augmentation proceeds from an outward accretion by the appoſition of particulars adhering to them, when they lie in place convenient: and, in time, their virtues may be abated, by being long out of their right *Ubi*; in which regard ſome ſuppoſed that they had life, and died.

What ſtones are, and whereof they conſiſt.

Stones live not a vegetative life.

The common ſtones are of a more impure and groſſe matter then the other. Some whereof are ſolid; ſome more full of pores.

Common ſtones.

In the ſolid, the parts are more continued, and better compacted: yet ſo, as ſome have a kind of ſhining in them; others are dark and dull. The ſhining ſolid ſtones, are chiefly all kind of marbles: of which I find three ſorts. 1. *Alabaſter*; which is of colour very clear and white. The Greeks call it ἀλαβαστρίτης and about Thebes in Egypt it is eſpecially found; there being the greateſt plentie of it. 2. *Ophites*, which is a kind of marble having ſpots like a ſerpent. 3. *Porphyrites*, which is the red marble, mixed or enterlaced with white ſpots. The not

Alabaſter.

Ophites; Porphyrites.

not shining solid stones are these, and the like: 1. The *Flint*. 2. The *Marchasite*, or that whereof they make milstones; which being struck with Steel, procures fire, like to the *Flint*. 3. *Cos*, which is of power to sharpen edgetools; whereof we commonly call it a whetstone. 4. *Corticula*, or *Lydius lapis*; which is of force to trie the truth in metalls: we therefore call it a touch-stone. 5. *Smiris*, which is an hard stone wherewith glasiers cut their glasse: some call this an *Emery*. 6. Those which we name wheaten stones, or any kind of rockie stone; or such as may be comprehended under the word *Saxum*.

Flint. *Marchasite.* *Cos.* *Corticula.* *Smiris.* *Saxum.*

Common stones lesse solid, are the *Pumex* and *Tophus*. 1. The *Pumex* is of a spungie nature, and is apt to swimme by reason of the light matter whereof it consisteth. 2. The *Tophus* is a sand or gravell stone that may easily be rubbed to crumbes.

Pumex. *Tophus.*

Precious stones.

But come now to precious stones: and amongst them we have the noble, and the lesse noble: both which sorts are begotten of a more subtil and thin matter then common stones, and fostered with a more singular influence of the heavens. My task were (in a manner) endlesse to reckon * all sorts: yet some must be remembred.

*Vide Plin. lib. 37.

The more noble precious stones, are, 1. The *Adamant* or *Diamond*, the most precious of all stones, and the hardest; insomuch as it cutteth glasse, and yieldeth not either to stroke of hammer or fire: notwithstanding it is softened with * Goats bloud being warm, soon after she hath eaten parsley or drunken wine.

Adamant.

*Some say that the bloud of a Deer or Lion will also molifie it, and make it fit to be broken: melted Lead also mixed therewith in a burning furnace, doth the like.

Plinie maketh 6 kinds of *Adamant*: The 1. is *Adamas Indicus*, being near akin to crystall; for in colour and clearnesse it is much like it: and in quantitie it is in bignesse as a filbert or hasell nut. The 2. is *Adamas Arabicus*, like to the other, excepting that it is something lesse. The 3. is called *Cenchros*, answering in bigness

neſſe to the grain of Millet. The 4. kind is *Adamas Macedonicus*; and this is like to the ſeed of a Cucumber. The 5. is *Adamas Cypricus*; this is found in *Cyprus*, and tendeth ſomewhat to the colour of braſſe. The 6. is called the* *Siderite*; which, although it be heavier then the other, yet it is of leſſe virtue and eſteem; the colour whereof is like to the colour of iron: And this, as alſo that of *Cyprus*, are termed by * *Plinie*, degenerate kinds; becauſe they will be broken by the hammer, or otherwiſe with blowes; and may alſo be cut or raſed by other Adamants. All theſe kinds, the two firſt onely excepted, are ſaid to have their place of generation amongſt the Gold, and in golden Mines.

*Some ſay, that it hath power to ſet variance between men.

*Lib. 37. cap. 4.

2. The *Saphire* is a very clear gem, very hard, and of a skie colour, growing in the Eaſt, and ſpecially in India: the beſt ſort hath in it as it were cloves enclining to a certain redneſſe. This ſtone is ſaid to be of a cold nature: and being drunk it preſerveth chaſtitie, corroborateth the heart, helpeth againſt the ſtinging of ſerpents, poyſon and peſtilence.

Saphire.

3. The * *Smaradge* is of a green tranſparent colour, making the air green near about it. The qualitie of this ſtone, in phyſick, is much like to the former, or of more virtue: for it is ſaid to defend the wearer from the falling ſickneſſe. And ſo greatly doth it favour chaſtitie, that if it be worn whileſt the man and the woman accompanie themſelves together, it breaketh in the very act.

Smaradge.

*Plinie maketh 12 ſorts of this ſtone, *lib.* 37. *cap.* 5.

4. The *Hyacinth* is of a watriſh colour, or rather ſomething blew like a violet. It is exceeding hard, and cloudy in the dark, but pure and clear by day: like unto a falſe flattering friend, whoſe blithe looks are onely ſeen in time of proſperitie; but gone when the cloudie night of dark adverſitie beginneth to approch: For where true friends are knit in love, there ſorrows are ſhared

Hyacinth.

What falſe friends are like unto.

red equally; and best are they perceived in a doubtfull matter.

Si fueris felix, multos numerabis amicos:
Tempora si fuerint nubila, solus eris.

Whil'st thou art happy, many friends thou hast:
But cloudie times those many friends do waste.

Moreover, this stone is of a cold qualitie, moderating the spirits of the heart and of the other parts; also it causeth mirth, and being worn obtaineth favour, as some report.

Amethyst. *Aristotle affirmeth no lesse.

5. The *Amethyst* is a gem or precious stone, which in colour resembleth a deep claret-wine; and (as* some suppose) it hath power to resist drunkennesse.

Carbuncle.

6. The *Carbuncle* (of which *Plinie* writeth in his 37 book and 7 chapter) is a gem shining with a light like fire, representing a flame. Some say it is the noblest, and hath most virtues of any precious stone.

Calcedon.

7. The *Calcedon* is of near nature to the *Carbuncle*: it is of a purple colour, and shineth like a star: it is said to expell sadnesse and fear, by purging and chearing the spirits: it also hindreth ill and fearfull visions or dreams in a mans sleep.

Rubie.

8. The *Rubie* is a red gem, shining in dark like a spark of fire: it cleareth the sight, and expelleth sad and fearfull dreams.

Chrysolite.

9. The *Chrysolite* is a stone of a golden colour, and shining, but brightest in the morning. It is good against melancholy; and fire is much hurtfull unto it.

Astarite.

10. The *Astarite* is a clear shining Crystalline stone, having in the midst the image of a full moon: or being turned about, the sunne or the moon may be seen shining within it. *Plin. lib. 37. cap. 9.*

Selenite. A stone which follows the course of the Moon.

11. The *Selenite* is a transparent gem like glasse: it hath a kind of spot in it which bears the image of the moon,

moon, increasing and decreasing as the moon; and therefore it is called the *Moon-stone*, *Ibid. cap.* 10. It is of a white, black, and yellow colour: and the scrapings of it heal the falling sicknesse.

12. The *Sardonyx* is a clear gem, in colour representing the nail of a mans hand: it preserveth *chastnesse, and healeth ulcers about the nails. *Albertus Magnus* witnesseth that if it be hanged about the neck, it doth greatly corroborate the strength of the body.

Sardonyx.

*The Indians therefore used to hang it about their necks.

13. *Achates* is a stone of divers colours, insomuch that the colours of other gems are not sufficient for it: sometime it is black with white veins and yellow: sometime it is as it were sprinkled with bloud; & (like a *Proteus*) is of so many colours that one would scarce believe it were one and the same stone. Eagles (as is said) lay it in their nests to preserve their young from poyson. And *Pyrrhus*, K. of *Epirus*, had one of these gems in a ring, in which were the nine Muses to be seen, and Apollo with his harp; not engraven by art (saith* *Pliny*) *sed sponte natura ità discurrentibus maculis*, but on natures own accord the spots being so disposed. *Plinie* also sheweth the divers kinds of this stone in the 10 chapter of his 37 book, affirming that it is good against poyson, and stinging of scorpions; and is supposed to procure eloquence, and make men wise and fair-spoken. See more in *Scal. Exerc.* 117.

Achates.

How Eagles keep their young from poyson.

**Plin. lib.* 37. *cap.* 1.

14. *Sardius* is a kind of *Onyx*, of a blackish or deep yellow colour. **Plinie* saith it is a common stone, and was found first about *Sardis*, but the best are near *Babylon*. Some call it a* *Corneoll.* It stoppeth bleedings at the nose, sharpens the wit, and makes men cheerfull and merrie, and set in a ring it restraineth anger.

Sardius.

**Ibid. cap.* 7.

*It helpeth to stop fluxes and is good against pyles in the fundament.

15. *Jasper* is a green stone, pointed with spots like drops of bloud.

Jasper.

16. The * *Topaz* is a precious stone whereof there be

Topaz.

**Ibid. cap.* 9.

two kinds; one of gold colour, casting beams in the sun; the other of a saffron colour, not so good as the other. This stone being put into boyling water doth so presently cool it, that one may forthwith pull it out with his hand, and feel no scalding heat: or being laid to a wound it stencheth bloud.

A stone that will suddenly cool seething water.

Emerald. 17. The *Emerald* is a precious stone of a green colour, something like unto the *Smaradge*.

Opall. 18. The *Opall* is a precious stone of divers colours, wherein appeareth the fiery shining of the *Carbuncle*, the purple colour of the *Amethyst*, and the green shew of the *Emerald*, very strangely mixed together.

Turcois. 19. *Turcois* is dark, of a skie colour, and greenish. It helpeth weak eyes and spirits, refresheth the heart; and, if the wearer of it be not well, it changeth colour and looketh pale and dim, but increaseth to his perfectnesse as the wearer recovereth to his health.

A compassionate stone the reason whereof is shewed in *Corrall*.

The sympathizing Turcois true doth tell,
By looking pale, the wearer is not well.

Now follow some such as are lesse noble gemmes.

Crystall. 1. *Crystall* is a kind of Ice made of waters which congeal themselves by a vehement and very long cold, as for the space of 10 or 12 continuall years. There is some quantitie thereof found in the Alps, and other cold mountains: and being polished, men make thereof work of divers fashions; as Vessels, Glasses, Mirrours or Looking-glasses, & other common things. His quality is said to be binding; and therefore his powder is helpfull in Laxes, and increaseth milk in womens breasts. Also another kind is sometimes found in the earth; as in some places of Germanie.

Good against Laxes.

Corrall. 2. *Corrall* is a stone growing in the sea like a slimie shrub, which by the aire presently is made hard and turned into a stone. The Greeks call it λιθόδενδρον; which is as much as if you should say, *A stonie shrub*. It is taken

up

up full of mosse, but being unbarked, it appeareth clear in its proper colour.

The red and branchie *Corrall* cometh something near in nature to the *Turcois*; for when it is worn by those who are shortly to fall sick, it waxeth pale and wan: the reason whereof may be, in that his tender substance is affected by the bad vapour, which is not so soon perceived in the bodie, because at the first it is not strong enough to afflict it. This stone, they say, is good against the falling sicknesse, sore eyes, and the stone. Also know that there be 3 kinds of *Corrall*; white, black, and red.

How it comes to passe that there seems to be compassion in a stone.

3. *Hæmatites*, or the *Bloudstone*, is a stone outwardly of a bloudie colour, inwardly like iron; and of such hardnesse that the file can scarcely bite it. The qualitie of this stone is to stench blood, either in a wound, or at the nose: also, it will eat proud flesh out of a sore. It is to be found either in Ethiopia or Arabia.

Bloudstone.

4. *Magnes*, or the *Loadstone*, is coloured like iron, but blewer, and tending to a skie colour: it hath virtue not onely to draw iron to it self, but also to make any iron on which it is rubbed, to draw iron also. It respecteth the North and South pole; and loseth not this secret virtue, unlesse it be rubbed with onions or garlick: which is certainly true, as may be proved by cutting any of the foresaid roots with a knife touched by the Loadstone. Some affirm, that physically used, it purgeth the dropsie, and helpeth the flux.

Loadstone.

Also, it is supposed that there are certain magneticall hills or mountains of Loadstone unto the Artick pole, and they are the causes why things touched with this stone, tend alwayes that way. But learned * *Scaliger* (as well he might) laugheth at this conceit. Again, others (with better probabilite) are perswaded that the Loadstone inclineth towards the starres of the pole by a secret sympathie;

*In his exercises against Cardan.

sympathie; even as certain flowers and plants turn themselves with the sunne. And for the attractive virtue which it also hath in drawing iron, it is supposed to be also by a kind of sympathy and likenesse of substance; there being two causes of attraction: one is *Similitudo*; and the other is *Fuga vacui*. Heat draweth in *Fuga vacui*; and in the similitude of substance, every part is supposed to draw its own proper nourishment. Whereupon (saith * one) sith iron is as it were the aliment or nourishment of the Loadstone, it therefore draweth iron to it. And, that iron is a kind of nourishment to the said stone, appeareth in that the filed dust of iron covering it doth long preserve it; and in tract of time the dust will be consumed; augmenting thereby the accretion of the stone. Not that it eateth, or is nourished by it as a thing having life: but even as the elements are moved to their places, as being their end and perfection; so it is in the attraction between this stone and iron, and the accretion which is caused by their reall contaction.

*Magir. Phys. where by experience he contradicteth Scaliger.

This I think may be supposed. But I leave it to the readers further enquirie, and abler examination.

Asbestos. 5. *Asbestos* is a stone of an iron colour, which being once fired can hardly be ever quenched. *Plinie* saith that it is to be found in the mountains of Arcadia. *Lib.* 37. *cap.* 10.

Dendritis. 6. *Dendritis* is a white precious stone, which being put under a tree, keepeth the ax, that cutteth it, from dulling. *Idem, lib.* 37. *cap.* 11.

Galactites. 7. *Galactites* is of an ash-colour; it seemeth to sweat out a kind of liquour like unto milk. *Plinie* saith it increaseth milk in nurses, and keeps the mouth of the child moist if it be hanged about the neck, &c. some also say that it helpeth running of the eyes, and ulcers.

*Lib. 37. cap. 10.

Amphitane. 8. *Amphitane* is a precious stone of gold colour, square, and of the nature of the Loadstone almost, excepting

cepting that it is said to draw gold unto it. *Plinie* saith that this stone is also called *Chrysocolla*, and is found in a part of India, where the ants cast up gold from their hills. *Lib.* 37. *cap.* 10.

A stone which hath power to draw gold to it.

9. *Androdamas* is a stone hard, and heavie; bright like silver, and in form like divers little squares. It putteth away rage of lecherie: and (as the magicians think, saith *Plinie*) it stoppeth the force of furie and anger.

Androdamas. *Plin. Ibid.*

10. *Pansebastos* is a precious stone taking away barrennesse.

Pansebastos.

11. There is also in *Plinie*, mention made of the stone *Thracius*, which being steeped in water burneth and sprinkles, but it is quenched with oyl.

Lapis Thracius.

12. *Amiantus* is a stone like unto alume; this, being put into the fire, is not hurt nor slurried, but rather more bright and clear. Unto which, one patient in troubles and adversities, may be likened: for his afflictions harm him not, but better him; making him look in the middest of a fierie triall, not like one slurried with repining, but clear and beautifull in the sight of heaven, by refining.

Amiantus.

One patient in trouble, what he may be likened unto.

But I conclude; and with him who writeth thus, cannot but say,

Oh mickle is the powrfull good that lies
In herbs, trees, stones, and their true qualities:
For nought so vile that on the earth doth live,
But to the earth some secret good doth give.
And nought so rich on either rock or shelf,
But, if unknown, lies uselesse to it self.
„Therefore who thus doth make their secrets known,
„Doth profit others, and not hurt his own.

Now follow metalls of a more friable and brittle nature. They are more mollified bodies, may be easily brought into crumbes or dust, are called precious earths something clammie, and of a middle nature between stones and the lesse pliable metalls.

These which follow are called metals of a more brittle nature.

Earth of Lemnos.

*In Constantinople the Apothecaries and Druggists sell of this earth in cakes, on which are stamped certain Arabian characters. On the sixth of August it is digged forth at Lemnos with many ceremonies.

First I begin with *Terra* * *Lemnia*, which is an exceeding red earth of *Lemnos* isle, digged in a red hill. In old time this had *Diana's* seal upon it, printed by her priests, who were onely wont to wash this earth: and now in *Silesia* and *Hassia* there is almost as good earth found. It is of force to resist poyson, and to heal old putrified or festered wounds.

Vermilion.

2. *Cinoper* is a soft red stone, found in mines; otherwise called *Vermilion*: of which *Plinie* speaketh in his 33 book at the 7 chapter, saying, that in times past it was not onely of great, but of sacred esteem among the Romanes: for they painted their gods with it; as he tells us of Jupiters image, whose face was coloured with Vermilion. So *Virgil* also, speaking of the shepherds god *Pan*, saith that he was seen,

Eclog. 10.

Sanguineis Ebuli baccis, Minióque rubentem,
With bloudie Walwort berries stain'd,
And with Vermilion red.

Neither were their gods alone thus beautified, but their own bodies also, in publick feasts and triumphing solemnities; as we reade again in *Plinie*, that *Camillus*, when he triumphed in Rome, was painted with this Vermilion.

Bole Armoniack.

Good against the plague.

3. *Bole Armenian*, or *Bole Armoniack*, is of a pale red colour, as easie to break as chalk; being of a very binding nature, and of great virtue against the plague: and seeing it drieth, it profiteth against all fluxes.

Oker.

4. *Oker* is a light clayie earth, of a red or yellow colour.

Arsenick.

5. That which the Grecians call *Arsenick*, the Latines call *Auripigmentum*: but I had rather that *Arsenick* should be the generall name, and that it be divided into 3 kinds; namely, into white, red, and yellow *Orpment*. The white is that which is the common rats-bane. Red *Arsenick* is called *Sandaracha*; of a bright red colour, used

used of painters, and found in mines of gold and silver. Yellow *Orpment* is the right *Auripigmentum*; it is like unto Brimstone. This (if it be our common *Arsenick*) is a very dangerous drug: for it is hot and burning, so as it gnaweth the stomach, and pierceth the bowels, producing a fever with an intolerable and an unquenchable thirst.

Red lead.

6. *Red lead* comes something near to the nature of Vermilion: and (as* *Plinie* writeth out of *Homer*) was used by the Trojans, and honoured before they knew Vermilion. For (as *Theophrastus* in *Plinie* witnesseth) *Callias* of Athens first found out Vermilion, thinking indeed to draw gold out of it. Howbeit, *Red lead* is no mineral, but made artificially.

*Plin. lib. 33. cap. 7.

Earth of Samos.

7. *Terra Samia* is a white, stiffe, and tough earth coming from the isle *Samos*. *Plinie* makes two kinds of it: the one more glutinous then the other; the other more cloddie, lesse glutinous, and whiter. He saith there be those who preferre the first as best. They are either of them good against spitting of bloud. *Lib* 35. *cap.* 16.

Good against spitting of blood.

Chalk.

8. *Chalk* is a white earth, which was first found in *Creet*, and therefore in Latine it is called *Creta*: But now we find of it in many other places. *Plinie* makes many kinds of *Chalk*; all which are not white: as in his 34 book at the 17 chapter is apparent; *Fullers earth* being a chief kind among them: and that, by others, is called *Creta Tasconia*. *Brown Umber* cometh also near to the nature of the said earth.

Fullers earth.

Brown Umber.

Lime-Chalk.

Calx is *Lime-Chalk*, which after it is burnt will be fired with water, but quenched with oyl: as Authours write. It is called *Calx viva*, because it contains a kind of hid fire in it.

Black earth like our coals.

10. *Ampelite* is a pitchie earth, cleaving and black; being much like to that which we call Pit or Sea-coal, as some imagine: and (haply) the diversitie of climate causeth

seth the difference. There is also found another earth, which * *Plinie* calls *Pignitis*, and some others *Pnigitis*, and it is as black as this.

*Lib. 35. cap. 16.

Bitumen.

11. *Bitumen* is a fat and tough moisture, like Pitch; and is called *Earthy Pitch*. Or thus: It is a kind of clay or naturall Lime, clammie like Pitch; and is to be found in many countreys of Asia. They who builded the tower of Babel, used this in stead of Morter, as appeareth in Gen. chapter the 11. And so did others also in old time, making it in like manner burn in lamps in stead of oyl.

Two kinds of Bitumen.

This pitchie earth is of two kinds: For it is either Hard, or Liquid.

Hard Bitumen.

The Hard is more strongly concreted then the other; being like unto clods of the earth, or coals. Or (as some affirm) it is tough and moist at the first, swimming on the water, but being taken forth it waxeth hard. Of this kind is 1 *Asphaltus*, 2 *Pissasphaltus*, 3 *Succinum*.

Three kinds of hard Bitumen.

Asphaltus.

Asphaltus is a black *Bitumen*, hard like stone-pitch, clear, and smelling scarce so ill as Pitch. It is found throughout Babylon, and especially in the lake *Asphaltites*; near unto which stood those cities of Sodome and Gomorrah, that were consumed with fire and brimstone: and where also do as yet grow apples, which (according to *Solinus*) are fair and fresh without, but within are full of Sulphur; and being handled they fall all to ashes: In which they are Emblemes of the vanities of this world, alwayes seeming more then they are.

Worldly vanities like to Sodome apples.

Pissasphaltus.

Mummie.

Pissasphaltus is said to be *Mummie*, or a kind of *Bitumen* somewhat* differing from *Asphaltus*, and is not seldome found in clods rolling from mount *Ceravine* to the Sea; as Authours witnesse. In stead of this, it is supposed that we have counterfeit *Mummie* often out of Syria,

*As having more pitch in it according to *Plin. lib. 35. cap. 15.*

Syria, Egypt and some other places, which is taken from poore mens bodies that die there : For in stead of Myrrhe, Aloes, Cassia, &c. (which the rich men have in their burialls and embalmings) the poore are dressed and stuffed up with *Bitumen*. This therefore which is but counterfeit, is nothing else but a corrupted humour taken out of old tombes, which there droppeth from embalmed bodies: and most ridiculously (in my opinion) do they erre who say it is made of mans flesh boyled in Pitch. It is hot in the second degree, and good against all bruisings, spitting of bloud, and divers other diseases.

Poore folk are glad of any thing.

Good against bruises, &c.

Succinum is a Bituminous suck or juice of the earth, being hard as if it were a kind of stone. It is of three colours ; White, Yellow, and Black. The White and Yelloware called *Amber* : and the Black is *Jet*.

Succinum.

Amber.

Jet.

They make beads of *Amber*. And some would have this *Amber* to be rather a gume growing on a tree, then to be a suck of the earth. The tree, by some, is called *Ibex Romana*. But (as others report out of *Dioscorides*) it falleth in manner of a liquour from Poplar trees into the river *Po* in Italie, where it congealeth and becometh hard, in that form as we see it.

Jet hath more plentie of fatnesse in it then *Amber*; and therefore it will burn like a candle, and smelleth like the Pine-tree. It hath an attractive virtue in it to draw chaffe, straws, and such other light stuff unto it, especially if it be rubbed till it be hot. And these are the kinds of Hard *Bitumen*.

The liquid and soft, is like an oyly moisture flowing, and is of divers colours according to the varietie of the place : but the white is said to be most precious. And for the kinds, the chief are these ; *Naphtha*, and *Amber of Arabia*.

Soft Bitumen, and his kinds.

Naphtha, is a liquid Bitume like unto chalkie clay, or (as it were) the fat of Bitume ; whereunto if fire

Naphtha.

Water cannot quench this liquour.

fire be put, it kindleth in such wise, that if a little water be cast thereon, it burneth more vehemently: And indeed it hath in it such a fiery force, that it will draw fire unto it, although it be farre off. When it is found to flow out of rocks, then it is called *Naphtha Petreolum*; and by some, taken for oyl. In the island Sicilie are fountains, from whence great store of this liquour floweth, which they frequently burn in Lamps.

Amber of Arabia.

Amber of Arabia, is *Bitume* of an ash colour, and of a fragrant sweet smell, desired and sought after as a most precious merchandise. It is found in *Arabia felix*, near unto a town which is called *Sichris*. Howbeit *Olaus Magnus* calleth that *Amber*, which is *Sperma Ceti*: but then it is *Ambergreese*, and rather the spawn then the seed.

Alume.

12. From *Bitume*, I come to *Alume*: which is said to be a salt sweat of the earth, according to * *Plinie*: congealing it self with a glutinous earth and water.

*Lib. 35. cap. 15.

It is either white or black.

The white is either clear or thick.

Roch-Alume.

The clear is softer and fatter then the other: This is *Roch-Alume*; and if paper be washed with this, it will bear ink very well, although it be bad.

Harder Alume.

Black Alume.

The thick is more hard, and of a grayer colour. Black *Alume* is found in *Cyprus*: and with this, gold is purified and purged. They that desire more, may reade *Plinie* in his 35 book at the 15 chapter.

Vitriol.

13. *Vitriol* is a suck of the earth concreted, obtaining the perspicuitie of glasse: some call it *Chalcanthum*, which word may signifie either *Copperas* or *Vitriol*. This suck is very poysonous.

Salt.

14. *Salt* is called *Sal, à saliendo*; because when it is put into the fire, it skippeth and danceth. It is a friable metall, begotten of a waterish and earthie moisture, mixt and decocted together: the efficient cause whereof

whereof is the heat of the sunne and other starres; who, out of a salt matter, drawing away the thinner and the sweeter parts, leave the earthie still behind, which being throughly rosted by heat, become salt. For there be two things requisite in a salt savour: The first, are drie and earthie parts; The other, is an adustion of the said parts, as Philosophers witnesse. Salt hath force to bind, to scowre and purge, to disperse, make thin, and the like: which thing Physicians can best declare.

There be 2 kinds; Naturall and Artificiall. The Naturall, is digged Salt. The Artificiall, is made or boiled Salt. *Salt is either Naturall, or Artificiall.*

Digged Salts are gotten either from the earth, or from the waters; as some distinguish.

Salts digged out of the earth, be principally of foure kinds.

The first is *Salt Ammonaick*. This is found in Africa under sand, and is something like unto alume. It is said to be hot and drie in the fourth degree, and serveth to purge slimie humours. Some affirm that that which Apothecaries sell in black clods, is made of Camels stale; and because store of Camels be in Armenia, it is called *Armeniack*. *Salt Ammonaick.*

The second is *Salt of Indie*, of which you may reade in *Plinie, lib.* 31. *cap.* 7. that it is digged out of mount *Oromene*; and that the King hath there a greater yearely pension or custome, then out of gold and precious stones. *Salt of Indie.*

The third is called *Salt-gem*, which is a kind of glittering Salt; white, and shining after the manner of Crystall. Sometimes it is also called stonie, marblie Salt; Salt *Dacian*, or *Sarmatick* Salt. *Salt-gem.*

The fourth is called *Salt-nitre*: and this is that which we call *Salt-peter*, found in drie places under ground, and in hollow rocks. *Salt-Peter.*

Of

Gunne powder and gunnes how invented, and when.

Of this is made that fatall dust, called *Pulvis Bombardicus*, or *Gunne-powder*: the invention whereof was after this manner. A Germane Monk or Frier, of the order of S. *Francis*, whose name was *Bertheldus Swart*, being very studious in Alchymie, was one evening (for the finding out of some * experiment) very busie in tempering brimstone, sulphureous powder of dried earth, and certain other ingredients, in a mortar, which he covered with a stone: and growing dark, he took a tinder-box to light him a candle; into which whilest he assayed to strike some fire, a spark by chance flew into the mortar, where catching hold of the brimstone and salt-peter, it fired with a sudden flash, and violently blew up the stone. The cunning Chymist, guessing which of his ingredients it was that produced this effect, never left till he found it out: then taking an iron pipe he crammed it full of the said ingredient, together with some stones; and putting fire to it, he savv that vvith great furie and noise it discharged it self. Soon after, he communicated this his invention to the *Venetians*, who having been often vanquished by the *Genomates*, did, by help of these bombards or gunnes, give them a notable discomfiture: which was in the yeare of our Lord 1380, as *Buchalcerus* writeth in his chronologie, saying, *Hac tempore BOMBARDÆ ad hominum perniciem inventæ sunt & excogitatæ à Bertholdo Nigro Chymista & (ut quidã volunt) Monacho Germano.* Wherein we see that he calls them bombards invented for the ruine of men. For by these (saith he) it comes to passe, that now (in a manner) all the force of the footmen, all the splendour of the horse, and all right warlike power, doth shamefully cease, lie dead, faint, and dull. *Polydore* also saith, that of all other instruments which ever were devised to the destruction of man, the gunnes be most devilish. In which regard (sith he was not well instructed concerning

* *Polydore Virgil* saith he was making a medicine. *Lib. 2. cap. 7. de invent.*

Polyd. Virg. lib. ut antea.

cerning the Almains name that invented them) he addeth yet thus much more, saying, *For the invention he received this benefit, that his name was never known, lest he might for this abominable device be cursed, & evil spoken of as long as the world remaineth.* And in the continuation of *Carions* chronicle, by * *Caspar Peucer*, it is also said, that about the beginning of *Wenceslaus* his reigne *That raging kind of engine & tormenting torture (which from the sound we call a * bombard) was found out by a Monk, the devil being the chiefest engineer or master-workman. For it was their care, that seeing the authority of idle superstitions should decline & fade by little & little, (which through these authours had bewitched the minds of mortalls, and cast them into eternall destruction) this might therefore succeed by them, the same authours, as another kind of mischief, which should rage against their bodies, as that other had done against their souls.* To this purpose *Peucer*. And indeed an experiment of his speech we then beheld, when the upholders of that tottering kingdome would have traiterously tried to have * sent at once, even all the Peers of this our land piece-meal into the aire. But *he that keepeth Israel shall neither slumber nor sleep. The Lord himself was our keeper*, so that their sulphureous fire could neither burn us by day, nor scare us by night: although *Faux* were taken the night before, among the barrells, and wished that then (sith he had done so much, and could do no more) his match with fire had toucht the powder.

Oh never let the memrie of that day
Flie from our hearts, or dully slide away.
God thought on us, that we remembring this,
Might think on him whose hand defendeth his.

But whither am I transported now? These foure, although they be the principall kinds of salt digged from the ground, yet there be other also: amongst which, those

* Lib. 5. pag. 817.

*Bombarda vocatur à bombo, id est, sonitu, quia βόμβος Grace dicitur. Buch. in chronol.

* In the powder treason, Anno Dom. 1605.

Salt of Spain.

those Spanish mountains would be remembred, where there is a salt cut out, and drawn as stones are out of a quarrie; in which place it afterwards increaseth, and filleth up the gap with more salt again. *Du Bartas* calls this the brine-quar-hill in Arragon.

Salt not digged from under ground.

And as for Salt digged out of waters or watrie places or not digged from under ground, it is thus caused; namely, by the heat of the sunne percocting those waters vvhich are extreamly salt. For when salt waters are throughly concocted by the sunne, they are so dried, congealed, and thickened, that in their shores, by their banks, and often upon their very surfaces or superficies, they render liberally good store of Salt. Thus in the summer time is the Tarentine lake (of which *Plinie* speaketh) turned into salt: the salt being in the surface of the waters, to the depth of a mans knee. So also in Sicilie, in the lake *Coranium*. And in some rivers, the water is knovvn to runne underneath in its ordinary course, vvhilest the uppermost part is turned into salt: as about the Caspian * straits, which are called the rivers of salt; and also near the *Mardi* and *Armenians*, whose countreys are in Asia.

Plin. lib. 31. cap. 7.

* They are straits about the Caspian sea, scarce the breadth of a wain.

Boiled Salt.

But leaving these, I come to the second kind of Salt, which is artificiall and made, or boiled salt. For although the matter be naturall, yet the making is by art. From whence it comes to passe, that of one, and the same salt water, this man will boil better Salt then that man; and he then another. Yea, some, out of water lesse salt, will boil and make better Salt, then others out of fountains more salt.

Many be the places where they make Salt after this manner, by boiling of salt water: neither is this kingdome of ours destitute of such fountains or wells. For at the towns called the *Witches* in Cheshire, there is a brinie water, which by boiling is turned into white Salt.

And

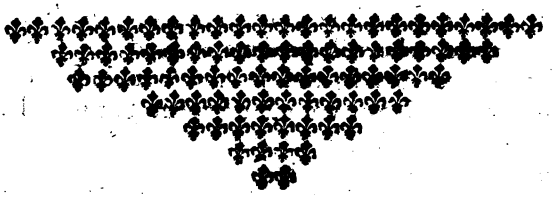
And the same water is said to be as good to powder any kind of flesh, as brine: for within 24 houres it will powder beef sufficiently. A great blessing of God to raise up such springs for our use so farre within the land: as also an evident argument, that the Sea is made salt by the substance of the ground; of which I have spoken my mind already.

And here unto all this, I could adde the necessitie of Salt; which is such, that we cannot well live without it, and therefore it is the first thing that is set on the table and ought to be the last taken away; according as one translateth out of *Schola Salerni*, saying, Salts necessitie.

Salt should be last remov'd, and first set down
At table of a Knight, or countrey clown.

This, I confesse (as pertinent) might be added; but it is now high time to put a period to the discourse of this dayes work. Take the rest therefore, all in one word; and then it is thus,

The eve and morn concludes the third of dayes.
And God gives to his work deserved praise.



CHAP. 7.

CHAP. VII.

Concerning the fourth day; together with such things as are pertinent to the work done in it.

Sect. 1.

Being as it were a kind of entrance into this dayes work, which treateth of the starres and lights.

THe structure of the earth being adorned with herbs, trees, and plants, in the third or former day; Moses now returns to shew both how & when God beautified the heavens; bedecking that vaulted roof with shining lights and beauteous starres: which like glittering saphires, or golden spangles in a well wrought canopie, do shew the admired work of the worlds brave palace.

And seeing this was not done before the sprouting of the earth, it may well be granted that they are but foolish naturalists who will presume to bind Gods mighty hand in natures bands, and tie him so to second causes, as if he were no free or voluntarie agent, but must be alwayes bound to work by means.

And again, the Text declareth that the sun, moon, and starres, were all unmade before this present day: and yet it saith there was light before. But it was then a dispersed shining, and now united to these bright lamps of heaven: that that riding, and they running like fierie chariots, might

might not onely rule the day and night, but also distinguish the better, and more harmoniously, the dayes from nights, seasons, weeks, moneths, and years; and not onely so, but be also for signes of something else.

Also, *God made them*, saith the Text. See then the folly of those who make them gods, and vainly do adore them. For let it be observed, that although the sunne and moon be called the greatest lights, yet if they be worshipped, they are abused to the greatest darknesse; and they that deifie them, may damnifie themselves by being as blind as the heathen Gentiles, and as superstitiously addicted as some (of old) amongst the Jews; whose answer to the Prophet Jeremie was, that they would not do according to his teaching, but follow rather the desperate bent of their own bows, in worshipping the moon as Queen of heaven. *As for the word that thou hast spoken to us in the name of the Lord, we will not hearken unto thee. But we will certainly do whatsoever thing goeth forth out of our own mouth to burn incense to the* *Queen *of heaven, and to poure out drinkofferings unto her, as we have done, we and our fathers, our kings and our princes, in the cities of Judah, and in the streets of Jerusalem.* Of which they give this reason: *For then* (say they) *we had plentie of victualls, and were well, and saw no evil*, Jer. 44. 16, 17. By which last words it well appeareth, that it was fear as much as any thing else, which made them thus advance this practise. And truly fear is an effect proceeding from the nature of superstition, and so farre prevailing, that it will there make gods where it doubted most of danger; as the Egyptians did, in making Fortune a goddesse. For they kept an annuall feast in honour of her deitie; giving thanks for the yeare which was past, and earnestly imploring her favour for the yeare to come. It was *Plutarchs* observation, that the superstitious alwayes think the gods

*The moon, as in Job, chap. 31. 26.

readie to do hurt. By means whereof he accounteth them in worse case then malefactours or fugitives, who if they once recover the Altar, are there secured from fear, where nevertheleſſe the ſuperſtitious are in greateſt thraldome: And from hence aroſe that ancient ſaying, *Primus in orbe deos fecit timor:* And hence it alſo was that the heathen, in inſtitution of their ſacrifices, did offer as well to all their gods that they ſhould not hurt them, as for any help they expected from them. An example whereof we have again among the poore ſilly Indians, who ſacrifice their children unto the devil at this very day, becauſe they be mainly afraid of him. And of old (as it is ſtoried) we have the example of *Alexander Magnus*, who ſacrificed to the ſunne, moon, and earth, that thereby he might divert the evil luck, which (as he feared) was portended by an Eclipſe but a little before. And the Jews did not onely burn incenſe to the Queen of heaven, but offer up cakes unto her alſo, as in Jer. 7. 18. From which kind of idolatrie Job did thus acquit himſelf, ſaying, *If I have beheld the ſun when it ſhined, or the moon when it walked in brightneſſe: or if my heart hath ſecretly enticed my mouth to kiſſe my hand unto it, or by way of worſhipping it: then this were iniquitie that ought to be puniſhed*, chap. 31. verſe 26. It ought indeed to be puniſhed, becauſe God Almightie had forbidden it; as in Deut. 4. 19. *Beware leſt thou lift up thine eyes to heaven, and when thou ſeeſt the ſunne, and the moon, & the ſtars, even all the hoſt of heaven, ſhouldeſt be driven to worſhip & ſerve them, which the* LORD *thy God hath divided unto all nations under the whole heaven.* And in Jerem. chap. 10. verſ. 2. *Learn not the way of the heathen, & be not diſmaid at the ſignes of heaven: for the heathen are diſmaid at them*: Which is, as if it ſhould be ſaid, The way of the heathen is to worſhip their gods with a ſervile fear, and attribute divine honour

nour to the creature. But you which are my people, do not you so: for God willeth not that the works of his hands should be worshipped. Or thus; He there teacheth them to have their trust so firmly fixed on him, that what disaster soever the heavens in the course of nature should threaten unto them, they ought not to fear it. For, *Astra regunt homines, sed Deus astra regit.*

And again, Moses in the text calls the sunne and moon two great lights: the greatest of which (even the sunne it self) seemeth to our eyes but little, and yet by rules of art is found * farre greater then the earth; that thereby we may learn not to trust our senses too much in heavenly things.

*Greater then any starre, and bigger then the earth 140 times, according to *Tycho*.

Last of all, let me prevent a question. The moon is lesse then any starre: for *Tycho* makes Mercury but 19 times lesse then the earth; whereas the moon is lesse by 42 times: how then can the moon be called a great light, seeing her bodie is no bigger? Take this *answer; The sunne and moon are called great lights, partly from their nature & effects; because they give more light then other starres. The sunne appeareth alone in the day, not because he is alone, but because through his exceeding brightnesse the other starres cannot be seen. The moon also in her brightnesse obscureth many starres; and being more beautifull then any other, hath worthily the chief preheminence in ruling the night, as the Scripture speaketh. Or thus, They be called great lights (say some) according to the custome of the Scripture, speaking according to the capacitie of the simple: for in outward appearance they are the greatest. And yet as great as the greatest is, if one should go about to perswade the vulgar that the earth is of a farre lesse circuit, they would scarce believe it; making the sun ne of the bignesse of some wheel, and the moon as much in compasse as the breadth of a bushel: howbeit * S. *Ambrose* gives sensible

*Or this; *Dicuntur duo luminaria magna, non tam quantitate quam efficacia & virtute. Quia etsi aliæ stellæ sunt majores quantitate, quam luna; tamen effectus lunæ magis sentitur in istis inferioribus, & etiam secundum sensum major apparet.* Aquin. ex Chrys. Hom. 6.

*In his Hexamer.

ſenſible and apparent reaſons of greatneſſe in the ſunne and moon, even by daily experience. For firſt, they appear of like quantitie to all the world, whereas herds of cattell being eſpied farre off ſeem as ants, and a ſhip diſcerned farre in the ſeas, ſeemeth no bigger then a flying dove. They ſhew of the ſame greatneſſe in *India*, and in *England*. They enlighten all parts of the earth alike, and appear the ſame indifferently to all; and therefore muſt needs be of an extraordinary bigneſſe. And ſecondly, as ſoon as the ſunne ariſeth, all the ſtarres are hid; which ſhews his greatneſſe. And further, if the ſunne were not of ſuch greatneſſe as Artiſts give unto it, how could all the world be enlightned by it?

Sect. 2.

Of the Matter, Place, and Motion of the Starres with other like things which are alſo pertinent.

Artic. 1.

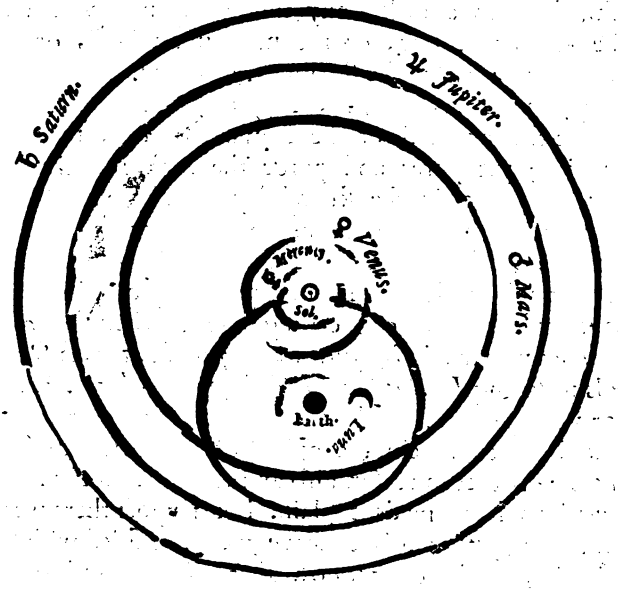
That they conſiſt moſt of a fierie matter, and are cheriſhed by the waters above the heavens.

BY *Heaven* and *Earth*, which Moſes ſaith were created in the beginning, we are to underſtand all and every part of the whole Univerſe: whoſe matter was created at once, and made as it were the ſtorehouſe for all things elſe; as already in the firſt dayes work I have declared. Howbeit ſome contend, that the ſtarres and lights of heaven were not made out of any matter either of the earth, or the waters, or of heaven, or any thing beſide; but immediately out of nothing. Which certainly is ſcarce agreeable to the whole ſcope of creation: For, in the beginning, the matter of all was made. And perhaps, as it was proper to the earth

earth to bring forth herbs, grasse, and trees, at the command of God in the third dayes work; so also (perhaps) it was as proper to the heavens, in some sort, to afford the matter of the luminaries and other starres, as soon as God said, *Let there be lights in the firmament of heaven.* And herein those Philosophers were not much amisse, who defined the starres to be the thicker part of their orbs. Yet nevertheless not so to be followed, as if the heavens afforded any solid orbs; unto which, as the knots in a tree, or the nails in a wheel, or the gemme in a ring, the starres are joyned. For besides that which I have alreadie spoken of the whole space within the concavitie of the firmament, *viz.* that it is but aire; yet purer and purer the higher we climbe: which I proved in the second day, both by opticall demonstration, height, consumption, and motion of Comets, with the like; besides that (I say) there be other reasons also to declare it. For not onely certain Poets have confessed as much, calling the skie *Spirabile cœli numẽ*, as we read in *Virgil*, or a *Liquid heaven*, as *Ovid* tells us, saying, *Et liquidum spisso secrevit ab aere cœlũ:* nor yet is it confirmed by the testimonie of *Pliny* alone, who followed herein the opinion of ancient Philosophers; but even reason also, and exquisite modern observations have made it plain. For suppose there were solid orbs, or that this concave were not filled with liquid aire, would it not follow that there should be as it were *penetratio corporum*, or that one Sphere should cut another in sunder? Questionlesse it would. For the Planets move so up and down that they often enterfere and cut one anothers orbs, now higher, and then lower; as *Mars* amongst the rest, which sometimes (as* *Kepler* confirms by his own and *Tycho's* accurate observations) comes nearer the earth then the Sunne, and is again estsoons aloft in *Jupiters* sphere. And doth not *Tycho's*

*Epit. Astron. lib. 4.

Hypothesis and *Systema* of the world make it also plain, that the sphere of the Sunne must be intersected by the orbs of *Venus*, *Mars*, and *Mercury*? which could not be if the heavens were impenetrable, or differed *toto genere* from this soft aire wherein we live and move. And now see this figure, framed according to *Tycho's* demonstration.



Thus *Tycho* describeth the wayes and situations of the Planets. The starres therefore move in the heavens as birds in the aire, or fishes in the sea, and the like: yet so, as their bounds are set; which with great regularitie, to the admiration of their Maker, they constantly come unto, & depart away from, in their appointed times and determined orders; and therefore said to be set in the firmament

ment of heaven, vers. 17. those of the fixed ones being as equally distant one from another, now, and at this very day, as at the first, when God Almightie made them: and those of the wandring ones as constant in their courses, as ever yet from the first time they began to move. Whereupon saith *Tycho, Semper judicavi naturalem motûs scientiam, singulis Planetis congenitam, vel potiùs à Deo inditâ esse, quâ in liquidissimo & tenuissimo æthere cursûs sui normam regularissimè & constantissimè observare coguntur.* Yet nevertheless we may not think that therefore they are living creatures, animated with a soul, and endued with life and reason; but rather, and in very deed (as even now I said) let this be an argument to shew and declare the admired wisdome of their Maker: according to that of David in the 19 Psalme, *Cœli enarrant gloriam Dei, The heavens declare the glorie of God, & the firmament sheweth his handie work.* For, *The sunne comes forth as a bridegroom out of his chamber, & rejoyceth as a giant to runne his course.* And yet again it is a thing very probable, that those amongst the Jews who made cakes for the Queen of heaven, who burnt incense to the Sunne, Moon, Planets, and host of heaven, who dedicated horses and chariots to the Sunne, did not onely do it because they worshipped them as gods, but also because (like * some amongst the Philosophers, and others amongst the * Fathers) they thought them to be living creatures. Sure we are that Moses puts them not into his catalogue amongst such creatures as he reckoneth to have life: and therefore who will say they live?

Tych. in Epist. ad Rothmannum.

* *Plato in Timæo*, with other his followers. See also *Cic. de natur. Deor. lib. 2*
* *Origen* and his followers.

They may move, and yet be inanimate; as fire, which is of power to move, waste and consume: aire inclosed is able to shake the earth: water carrieth ships, boats, and barges; flows this way, and that way, yet is no living creature, hath no soul, mind, or reason.

Also, it may be granted that they are daily nourished

by vapourie humours, and are (as it were) fed by such kind of food; yet no living creatures. For no man will denie a transmutation of the elements, but rather easily grant that they one nourish another for conservation of the Universe: And in such a kind, or not farre differing, it is that the stars may be nourished by waterie humours, and have their beams made wholesome to the world, although they be no living creatures. All which may be seen more largely proved in *Lydiats Prælectio Astronomica*: where having discoursed of the matter of the heavens and starres, as also of the portions and transmutation of the elements, he proveth that there is such a penurie of water here below, that it cannot be supplied (*ad mundi, non dicit æternitatẽ, sed diuturnitatẽ, propter inæquales elementorum transmutationes*) not supplied without the consumption of the aire, were not the waters divided. The one part whereof is *circa mundi medium*; from whence may be had in readinesse alwayes that which is sufficient to water and fructifie the earth, and leave a place for habitation. The other *circa mundi extremum*, as in a great treasure and plentifull storehouse, from whence (*per mediam aeris naturam*) both the starres are cherished, their beams made wholesome to the world, and also the expense of these lower waters salved in what is needfull: for the earth, as a bad debter, either sends back none, or little of that which it borrowed, not being easily turned into any other element. From whence (saith he) we may answer that question amongst the ancient Ethnick Philosophers, mentioned by *Plutarch*, πόθεν τρέφεται ὁ κόσμος? *Unde nutriatur mundus?*

cap. 4. & cap. 5.

And indeed for mine own part I also think, that the starres are of such a nature or substance, that (in their kind) they stand in need of daily sustentation, like a lamp which can burn no longer then the oyl lasteth which

which ever feeds it. For the heavens are subject to change and alteration; neither is there any necessity compelling us to attribute a quintessence to either of them (especially seeing we are certain that the world is not eternall) but that we may as well and as probably grant them to be of the same nature with the elements; as formerly I have related. Which being granted, I suppose them to be chiefly of a fierie nature: and this (perhaps) they took from the * highest part of the aire, in the supream height of heaven, which reacheth to the utmost extent of the out-spread firmament: For there is that which we call the Elementarie fire; there, I say, and not in a lower place: although *Aristotle* would have it *in concavo lunæ*, or next under the orb of the moon; of which see more in the second dayes work.

*Or, *A luce primæva*, which was made in the first day: in which see more.

And herein I do willingly also embrace the opinion of *Plato*, that the starres for the most part are fierie: yet so, as they in some sort participate also of the other elements; that thereby their bodies may be (as it were) glewed together, and firmly concreted into a durable lump: differing no otherwise from a Comet then ice doth from crystall, or a clear solid gemme from bright brittle glasse. An experiment whereof we have in that new starre of *Cassiopea's* chair; which, because it was of a more solid composition then ordinarie comets, and of a nearer nature to the matter of the continuing starres, did therefore appear like one of them, & lasted a long while with them before it was extinguished: for had it not been exalted to a great perfection and solid composition of the parts, it had been gone, extinct, and vanished, a long while sooner. And in granting to them something of every element (although their greatest portion, especially in the sunne, be fierie) it comes to passe that they have differing qualities: of which see more afterwards in the Astrologicall part of this dayes work. Neither shall

ſhall I need to ſtand upon it as a thing neceſſary for me to prove, whether they make warm the aire and us by any heat which is formally in them, or by the attrition made with their beams. Onely know, that it is hotter in ſummer then in winter, becauſe when the beams of the ſunne come neareſt to a perpendicular trajection, their heat is the greater, becauſe their reflection is the ſtronger.

But leaving this give me leave to proceed, and to proſecute more fully the matter in hand, that thereby I may ſhew my meaning now more clearly concerning the daily nouriſhment of theſe bright heavenly lamps. For (as hath been ſaid) ſeeing their chiefeſt matter is of that nature of vvhich it appeareth to be, they muſt of neceſſitie be nouriſhed out of ſome ſtore-houſe or other; otherwiſe the vvorld comes to decay, *& impavidum ferient ruinæ*, and the very ruines vvill ſtrike him vvho fears it not. For ſatisfaction therefore in this, it cannot be amiſſe to remember the opinion amongſt ſundry of the ancient Philoſophers, vvho ſaid the truth, and yet erred in declaring it: as *Cleanthes*, vvho allovved the matter of the ſunne to be fierie, and that it vvas nouriſhed by humours attracted from the ocean. Alſo *Anaximander* and *Diogenes*, after whom *Epicurus*, and the Stoicks, thought in like manner that the ſunne vvas nouriſhed by vvaters: and leſt it ſhould periſh through any defect of aliment, they fondly ſuppoſed that the oblique motion which it had from one Tropick to another, vvas to find out moiſt humours, that thereby it might live perpetually. Novv theſe things very vvorthily vvere held by *Ariſtotle* to be ridiculous and abſurd; as in the ſecond book of his Meteors, at the ſecond chapter, is apparent. Yet nevertheleſſe ſucceeding times did in a manner pitch ſtill upon the ſame tenets, and vvould not onely have the ſunne and reſt of the Planets, but even all the other ſtarres nouriſhed by vapours and watrie humours, as

vvell

well as they. For amongst others, it was *Cicero's* opinion in his second book *De natura deorum*; making the sea, and waters of the earth, their daily store-house. See also *Seneca* in his 6 book and 16 chapter of Naturall questions; and *Plutarch in libello de Iside*; and *Plinie* in his Naturall historie, *lib.* 2. *cap.* 9. whose words are these, *Sydera verò haud dubiè humore terreno pasci, &c.* These indeed spake the truth, but (as I said before) they erred in declaring it. For it is nothing probable, neither may it be granted, that all the seas, or waters in the world, are able to afford moisture enough for such a purpose.

And therefore smile I at those fable-forgers,
Whose busie-idle style so stiffly urges
The heav'ns bright Saphires to be living creatures
Ranging for food, and hungry fodder-eaters;
Still sucking up (in their eternall motion)
The earth for meat, and for their drink the ocean.
Nor can I see how th' earth and sea should feed
So many starres, whose greatnesse doth exceed
So many times (if starre-divines say troth)
The greatnesse of the earth and ocean both:
For here our cattell in a moneth will eat
Sev'n times the bulk of their own bulk in meat.

Du Bart.

Wherefore be pleased to call to mind what was formerly mentioned in the second day, concerning the waters above the heavens, set apart from these below by the out-spread Firmament: but how it is that there they are, and that the out-spread Firmament is able to uphold them, let the alledged reasons in the foresaid day be again remembred. And then observe, that these waters were certainly separated for some purpose: for *Deus & Natura nihil faciunt frustrá; God & Nature make nothing in vain. He made all things in number, weight, and measure,* * saith Solomon; so that there is nothing which was not made for something. I do therefore consent again

* Wisd. 11. 12.

*Lydist. Prælect. Alron & lib. de Orig. Fon: cap. 10.

again to those who * suppose that these waters do daily nourish and cherish the starres; thereby also so tempering and ordering their beams, that they may remain wholesome to the world; turning also and attenuating those drops, with which they are cherished, into thinne aire: and so doing, nature is kept from perishing before her time.

*Igneæ sunt, sive à luce primæva factæ: & sic, lux est essentia stellarum. Ignis enim non aliud quàm calor densatus, sive lux compacta. Patric.

Neither let it seem strange although the starres be granted to consist most of a * fierie temper, that therefore they cannot be cherished by watrie humours: for it is certain that fires are endued with sundrie qualities or forces, according to the divers mixtion of matter, or divers disposition of the subject. From whence it comes to passe that a bituminous flame is not quenched, but nourished in water; and the fire of lightning is said to burn the fiercer when we strive to quench it. These waters therefore, sweating (in the likenesse of thin vapours) through the utmost extent, or roof of the outspread Firmament (which was made strong by stretching out, and by which they are upholden) do both supplie that decay of aire which otherwise would be, and also do so temper and cherish the diuturnitie of the starres, that thereby they shall continue untill the end of the world.

*Idem.

Elementorum transmutationes (saith * one) *sunt inæquales, ergò & proportiones; ac majores quidem eorum, quæ facilius transmutentur in alia: & hoc ex necessitate, non dico ad mundi æternitatem, sed diuturnitatem. Aqua autem multò magis mutatur in terrã, quàm terra in ipsam: & aer hoc aquæ damnũ, sine maximo sui dispendio, resarcire nullo modo potest nisi ab aquis supercœlestibus.* And (perhaps) the daily wasting of these waters may be the cause that the world is perceived to have a successive declination, and to grow old as doth a garment; untill at the last, age (for want of matter to keep an harmonious transmutation in the conservation of it) shall (according

cording to the determined purpose of Almighty God) suffer it to end, as being worn out, and little able to continue any longer. Which, when it shall be, or how he intendeth to shorten it, rests onely in the secret counsel of the holy Trinitie: the divine word nevertheless testifying, that (as tokens before it) *there shall be signes in the sunne and the moon, in the heavens and starres. For the starres shall fall from heaven, and the powers of heaven shall be shaken. Cadent de cœlo stellæ* (saith * one) *non ratione substantiæ, sed lucis; quia lumen suũ retrahent, & obscurè reddent.* Which saying agrees directly to my meaning, when I speak of the waters wasting. For as the elements before, from time to time, have suffered a transmutation, and shall now begin to devoure one another: so the starres shall fade, and (perhaps) be weakened in their qualities, by having the lesse powerfull elementarie part in them turned by the more powerfull; or if not so, yet much altered by that sensible decay in the waters above the heavens.

Matth. 24. 29. Mark 13. 25. Luke 21. 26.

* *Gerard. loc. Tom. 9. pag. 231.*

And thus, though I differ from *Aristotle* and the Peripateticks, yet I have not much declined from the paths of other ancient Philosophers, or from the steps of *Plato*: in which, how farre (in my judgement) we may follow the Academicall sect, the Stoicks, and those of *Epicurus*, hath been related. Howbeit I leave all free to the more judicious; though for mine own part I think thus of the worlds *Systema*. Let therefore those of the adverse part pitch their censure with the more favour: and so I proceed to the following articles.

Artic. 2.

Of their order and place in the skie: and how it comes to passe that one starre is higher then another.

HAving already shewed that the vvhole concave of the heavens is filled with no firmer matter then soft and

and penetrable aire, and that the ſtarres have no ſolid orbs to uphold and move them, it may not unfitly be queſtioned how they ſhould hang in ſuch a weak yielding place, and yet (according to their times) keep ſuch ſeverall certain diſtances one from another, as we ſee they do.

To which, perhaps, ſome would anſwer, that every ſtarre, in reſpect of his either more or leſſe fiery qualitie, doth either more or leſſe aſcend from the centre: and ſo, according to his gravitie or levitie, reſt naturally higher or lower as in his proper place: the aire having a like power in the upholding of fiery bodies, which the water hath in carrying of airie bodies. For as a piece of *Braſill*, or *Lignum vitæ*, will ſink lower into the water then ſome lighter kind of wood wherein there is more aire: in like manner that ſtarre which hath moſt of his matter from the more groſſe elements, takes his place in the loweſt room; whereas the lighter ones are naturally ſeated higher. And indeed this is an anſwer which would ſerve the turn, and bear out the matter well enough, if there were no ſtarres but thoſe which we call the fixed ſtarres; for they are never obſerved to be higher or lower, but alwayes of one and the ſame diſtance from the centre. But ſeeing there be Planets likewiſe whoſe diſtances are unconſtant, and whoſe places, are at ſome one time farre more abſent from the earth then at ſome other; nay, Mars is ſometimes nearer then the ſunne: ſeeing it is ſo (I ſay) their gravitie or levitie cannot abſolutely be the cauſe: but rather ought this to be referred to that infuſed force which his hand firſt gave them who placed them there. For as the Sea being ſtirred by the moon to a loftie flux, and having lifted up his rolling waves above the neighbouring banks, would in all probability overflow the earth, if the Almightie had not infuſed it with ſome occult

cult qualitie, ſaying, Hitherto ſhalt thou come, and no further;as we reade in Job:So likewiſe the ſtarres would not keep their high and low places at certain infallible times ſo as they do, and be ſo orderly in their motions as they are, were it not from the power firſt put into them when they were placed in the firmament:of which I ſpake but a little before, when I ſhewed they were no living creatures. For concluſion therefore, I like well of the former reaſon if it be referred to the fixed ſtarres;but as concerning the Planets, we ſee that it holdeth not in all and every part, nor yet is abſolutely found ſufficient. And yet for further ſatisfaction of the curious, let it be ſuppoſed that the aire is ever thinneſt in that place whereunto the ſunne is neareſt : ſo that though the Planets naturally have but one place, yet accidentally they may be found either higher or lower, according to their approaching to or from the place of the ſunne ; like as may be ſeen in one and the ſame weight, if it be proved how unequally it will ſink in divers waters, and in waters of a differing thickneſſe. Of which reade more in Mr *Lydiat* his *Prælectio Aſtronomica,* in the fourth and eighth chapters. But in the mean time, and ever after,admire the wiſdome of thy Maker, and praiſe his holy name:For *he hath ſo done his marvellous works,that they ought to be had in perpetuall remembrance.*

O never let theſe works forgotten be :
Their art is more then humane eyes can ſee.

Sect.

Sect. 3.

Of the offices given to the Sunne, Moon, and Starres, in the day of their creation.

Paragr. 1.

Shewing that their first office is to shine upon the earth, to rule over the day and night, &c.

Artic. 1.

Of light, what it is: and whether the Sunne be the onely fountain of light.

THe former part of my discourse hitherto in this dayes work, was chiefly founded upon these words, *Let there be lights in the firmament of heaven*; and upon these, *And God made the starres also*. But now I come to speak of their offices: The first whereof is that exquisite one above the rest; I mean their bright and radiant shining, by which the dismall clouds of foggie darknesse are daintily devoured, and the sweet comelinesse of the worlds ornament made apparent. For without light all things would appear like the face of hell or horrour, and each parcell of the worlds fabrick lie buried in black obscuritie, and dismall squalour. Whereupon one speaketh worthily, saying, that amongst those * qualities subject to sense, there is none more fit to shew the due *decorum* and comely beauty of the worlds brave structure, none more fit then light. For where it spreads it self (either above us, or below us) all things are then encompast with such a splendour, as if a golden garment were dilated over them, or curiously put upon them. Let it not then be ashamed to shine and shew it self to the praise of him who made it; For, *Praise him sun and moon: praise him oh ye starres and light*, was Davids song. But to proceed. Authours make a difference between *Lux* and *Lumen*. It

* But how it is a qualitie, see afterwards.

It is called *Lux*, as it is in the fountain, that is, in a bodie which is lucid of it self; as in the sunne: so saith *Zanchius*. But it is *Lumen* as it is in some *Medium*, that is, *in corpore diaphano*, as is the aire, or water. *Lumen enim nihil aliud est quàm lux, lucísve imago, in corpore diaphano.* From whence may be gathered, that that primarie light, which we comprehend under the name of *Lux*, is no other thing then the more noble part of that essence which is either in the sunne, moon, or starres: and so far as a corporeall substance may be given to fire, it may be also attributed to that which is properly called light; being in and of those lamps of heaven which were made *ex primæva luce* chiefly, and so came to appear of a fiery colour. Whereupon *Patricius*, writing against the Peripateticks, saith, *Lux est essentia stellarum. Nihil enim aliud flãma quàm lumẽ dẽsius; & lumẽ, non aliud quàm flãma rarior. Calor quoque, non aliud quàm ignis rarefactus atque diffusus; & ignis, non aliud quàm calor densatus, sive lux compacta.* Take therefore my meaning rightly, lest I be supposed to be much mistaken.

And again, concerning *Radius*, which is a Beam or Ray, it is no primarie light neither: but rather (as *Patricius* also writeth) it is *Fulgor à Luce exsiliẽs in rectã & acutã figurã, seu in modũ Pyramidis & Coni promicans.* To which, *Scaliger* is affirming; saying, *Lux, est alia in corpore lucido, ab eo non exiẽs; & alia à corpore lucis exiẽs, ut Lumẽ & Radius.* And *Zabarel* also saith, *Lux, alia est proprie dicta in astris ipsis; alia, à luce producta in perspicuo.* Whereupon I cannot but be perswaded, that light in it self, properly & primarily taken, must be an essentiall property; as formerly I have related: but to the aire, or other things enlightned by it, it is an *accidentall quality approved of God as good, both to himself & the future creatures. For although it be commonly said of compound things, that they are such as we may distinguish of them

*Observe this difference: because light commonly taken is said to be a qualitie.

in ipsa essentiam susceptricem, & in eâ quæ ipsi accidit qualitatem: yet here the case proves otherwise; because the sun and stars have *susceptam semel, secúmque immixtam lucem.* And again (as saith *Theodoret*) *Lucem quidem condidit ut voluit. Quemadmodum verò firmamento aquas divisit, ità lucem illam dividens ut voluit, luminaria magna ac parva in cœlo collocavit.*

Sol. ☉ The Sunne.

And as touching the brightnesse of the starres, the sunne may well be called *Oculus mundi, The eye of the world.* For he is indeed the chief fountain from whence the whole world receiveth lustre; shining alone, and enlightning our whole hemisphere, when all the other starres are hid. From whence some Philosophers and Astronomers have been of opinion that the fixed starres shine not but with a borrowed light from the sunne. *Plutarch*, in his 2 book and 17 chap. of the opinions of Philosophers, saith that *Metrodorus*, and his disciples the Epicures, have been of this mind. But according to the minds of the best Authours, and nearest equipage to truth, the starres are called lights, as well as the sunne and moon; although there be a difference between them, either of more or lesse. For Paul distinguisheth between the starres and sunne, *non privatione lucis, sed tantùm gradu.* And when God said, *Let there be lights in the firmament of heaven*, he made not the sunne alone, but the sunne, moon, and starres: the light in the starres being in very deed darkened by that in the sunne; which doth but differ in degree from that in them. Whereupon it is that the starres shew themselves by night onely when the sunne is hid, or in some deep pit whither the sunne-beams cannot pierce. If therefore we cannot see them, *Id non solis, non stellarum culpâ fit, sed oculorum nostrorum hic est defectus: ob solaris enim luminis copiâ ac vigorem debilitantur.*

1. Cor. 15 41.

Also, some adde their influences; as that of the *Little dogge*

dogge, the *Pleiades*, and others, being plain testimonies of their native light: For if they had not their proper and peculiar light (being so farre distant from the inferiour bodies) it is thought they could not alter them in such sort as they sometimes do: and evermore the further they be from the sunne, the better and brighter we see them.

And as for the diversitie of their influence, the differing qualitie of the subject causeth this diversitie. So that though this light, for the first three dayes, was but one in qualitie, it came to have divers effects as soon as it was taken and bestowed upon the starres and lights. And (perhaps) as there is in them the more of this fire, the hotter is their qualitie: but little fire, and more water, the moister and cooler; and so also, the more earthy substance, the darker.

Neither do I think that we may altogether exempt the moon from her native light. For although she shineth to us with a borrowed light, yet it is no consequence to say, she hath therefore no own proper light. There is (saith *Goclenius*) a double light of the moon; Proper, and Strange. The Proper is that which is Homogeneall to it self, or *lux congenita*, a light begotten together with the moon, and essentiall to it, although it be but weak. The other is, that which it borroweth from the sunne; as is seen in eclipses & monethly revolutions: For she is one while full, another while hid; one while horned, another while half lightened; which is but in respect of us, who cannot see what light she borroweth, but as she approcheth from the sunne: for otherwise she is half lightened alwayes. Or (if you please) consider it thus, that as a well polished Mirrour transporteth the light of the fire, or the sunne against a wall or a floore; so the moon receiveth her light from the sunne, and reflecteth it in the night upon the earth: for the sunne, The Moon.

ſunne, being then abſent, gives an abundant and free leave to ſee it. And again, as in a Mirrour, which hath behind it his foil of lead ſcratched and torn, a man may perceive certain ſpots; So in the moon, becauſe her bodie is in ſome places rare and tranſparent, and in other places maſſie, thick, and ſolid, there appear certain *Maculæ* or blemiſhes: for thoſe places and parts are not of a fit temper to reflect the light of the ſunne.

The Spots of the Moon.

But if it be ſo in the moon, why may not the other ſtarres ſhine likewiſe with a borrowed light as well as ſhe?

I anſwer, Becauſe we have not the like reaſons to declare it. Neither is it like (ſaith *Patricius*) that that unmeaſurable companie of fixed ſtarres in the higheſt part of heaven (which is ſo much more noble then the place of the ſunne, by how much it comes nearer to the Heaven of heavens) ſhould ſhine but by the light of the ſunne: For neither in them, nor in any other of the Planets, doth any man ſee a waxing and waning of light; nor yet are they ever eclipſed, but ſhew alwayes of one and the ſame brightneſſe: and therefore it is not the ſame reaſon between the moon and them. Perhaps, if their bodies were compoſed in the ſame manner with the bodie of the moon, or had the like proportions and temperaments that ſhe hath, it might be ſo: but her lowneſſe ſhews her gravitie; and her gravitie her ſoliditie; and her ſoliditie ſhews, not onely her own light to be weak through a want of that fierie matter, or *lux primæva*, which is in the other ſtarres in a differing degree, but alſo her aptneſſe for reflection is declared to be ſuch, as ſhe may well ſhine by a borrowed light.

Howbeit I do alſo think that the ſtarres have *aliquid lucis alienæ*. which they receive from the ſunne. To which *Patricius* alſo aſſenteth (as he is mentioned by * *Caſman* in the firſt part of his Aſtrologie) ſaying, *Tribuit*

* Cap. 10. quæſt. 7.

buit quidem omnibus, sed lucere nequaquã facit. Nam & ipsa flamma sunt, & suâ essentiâ lux sunt, non minùs & suis viribus lucere possunt, & lucent. Sed lumen suum eis sol addit, lucémque eorũ reddit lucidiorem. Lucem ergò eis non indit, sed insitam adauget: meaning that the sunnes light increaseth the light of the starres, making it the brighter and the clearer: which must be understood of them, so long as they are at a convenient distance from the sunne. For if they be too near, either the lesser light is obscured by the greater (as is seen in the Planets, being often hid by the beams of the sunne) or else such a dark starre as *Mercurio*, will with the losse of his light shew us his dark bodie, which sometimes happeneth, being then seen as a spot in the sunne: For if you take *Mercurio* in his best hue, he hath but a cloudie countenance, and a leaden look; which therefore argueth that he hath a thick bodie and little light: of which I shall need to say no more.

Artic. 2.

Of the twinkling of starres, or vibration of their light.

THe twinkling of the starres is the vibration or trembling of their light. Or rather thus; It is when the light of any starre seemeth to tremble. For indeed, to speak properly, the starres themselves do not twinkle, as we think they do; but either from the trembling of the eye, or motion of the aire, this appearance proceedeth. For when the eye looks long at a sensible object whose brightnesse excelleth the sense, it then beginneth to faint, and being weak and wearie, is possessed with a kind of trembling; and thereupon we think that the starre it self twinkleth. Also the Optick Masters confesse and prove, that the forms of the starres are comprehended

hended of the ſight reflectly, and not rightly: that is, a right line drawn from the eye falleth not into the centre of the ſtarre, but into the form of it reflected and refracted in the aire to the ſight. Now it is manifeſt, that as the aire hath one motion proper to it, which is upwards; ſo hath it another motion improper, cauſed by the revolution of the heavens every 24 houres, which draweth all the airie region about therewith: by which means the apparent form of the ſtarres is diſtracted, ſeeming to caſt forth ſparkles, called twinkling. For if the bodie move wherein the form of the ſtarre appeareth, it muſt be ſo: which we may well prove by a piece of ſilver in the bottome of a ſwift running brook, or by the reflection of the ſtarres ſeen in the ſame: for by the running of the water the reflected form is diſtracted, and as it were broken: and ſo it is likewiſe in the aire with the ſtarres.

But may not this twinkling be ſeen in the Planets as well as in the other ſtarres? I anſwer, that not alwayes, yet ſometimes it may: and this is but when a watrie vapour is near unto them, which is carried and toſſed of the winds with a various motion: for then the forms of the Planets alſo being refracted in the ſaid vapour, appear to the ſight as if they twinkled. Now this is moſt of all perceived in the Eaſt at the time of their riſing: whereupon it comes to paſſe that the common people have ſuppoſed they have ſometimes ſeen the ſunne dance, and as it were hop up and down; which, why ſome have attributed it to ſuch and ſuch dayes, is * fabulous: For this may be upon any day when the ſunne meets with a fit portion of vapours at the time of his riſing; and the other Planets may alſo in ſome ſort ſometimes ſhew it, when they have climbed to an indifferent height above the Horizon: which becauſe it is not ordinarie, ſome have falſely ſuppoſed that the Planets twinkle not at all.

A reaſon of the Sunnes dancing.

* See *Scal. Exer.* 63. & *Goclenius Diſput. Phyſ.*

And

And again, let this be remembred, that (if there be fit vapours rightly placed) Mars and Venus twinkle more then Saturn, Jupiter, and Mercury : but otherwise this appearance is neither in Mars nor Venus, nor any of the rest.

Paragr. 2.

Of that other office which was given to the starres; viz. that they should be for signes, &c.

Artic. 1.

That the starres are signes of future events; and that by their naturall qualities, they work upon the inferiour world, and all the parts of the same.

IF I should expound the words of Moses so nicely as some have done, the starres must then either signifie nothing in the course of nature, or else be for signes onely of seasons (as Spring, Summer, Autumne, Winter) and of dayes and years. Which exposition doth certainly tie up the sense in too strait bands : For it is plain enough that Moses very positively setteth down as a distinct office by it self, that they were made for signes : And then he proceedeth, adding therewithall, *And let them be for seasons, and for dayes, and for years.*

In consideration whereof, the sentence certainly must be divided.

And first let us observe out of it, that the starres, by a divine ordination, were set in the heavens to be for signes of future events : wherefore it is said, *Let them be for signes.*

Secondly they were appointed to be (as it were) heavenly *clocks*, and remarkable *measures*, by their motions defining and discerning Time and the parts thereof, as dayes, weeks, moneths and years : And therefore it is also added, *And let them be for seasons & for dayes,*

and for years. Of which two offices I purpose to discourse a while; beginning with the first, as being most pertinent to this Paragraph.

And lest it may be thought that Moses his meaning is here mistaken by me, besides other things that I purpose to remember, I would have him compared with the Prophet Jeremie, in the 10 chap. at the 2 verse, where, when the Prophet commands the people that they should not learn the way of the Heathen, he calleth the starres (like unto Moses in this very text) *The signes of heaven.* From whence* *Melanchthon* gathereth, that the Prophet doth not onely name them signes, but also sheweth that they were set to be signes of portending something. For, *Non ait Jeremias, nihil esse signa cœli; sed, A signis nolite timere. Imò cùm nominat signa, portẽdi aliquid affirmat.* And *Luther* also affirmeth, in his cõmentarie upon the words of Moses, *Simpliciter lunã cum sole & stellis in firmamẽto cœli Moses dicit positas, ut essent signa futurorum eventuum, sicut experientia de Eclipsibus, magnis conjunctionibus, & aliis quibusdam Meteoris, docet.* Which is, *Moses plainly saith that the moon, with the sun & stars, were placed in the firmament of heaven, that they should be for signes of future events, as experience teacheth us in Eclipses, great conjunctions, Meteors, and the like.* To which may be also joyned the testimonie of learned *Philo,* alledged by Sr *Christopher Heidon* in his defence of Judiciall Astrologie. *This man* (saith he) *was familiar with Peter the Apostle, and with Mark:* and in divers places, but specially in his book *De Mundi fabricatione*, in his exposition of that in the 1 of Genesis, *viz.* LET THEM BE FOR SIGNES, he thus speaketh, saying, *They were created, not onely that they might fill the world with their light, but also that they might be for signes of future things. For by their rising, setting, defections, apparitions, occultations, & other differences*

Præfat. in lib. Schoneri de judiciis natiuit.

ferences of motion, they teach men to conjecture of the event of things: as of plenty and dearth; of the growing up or decay of creatures animate; of clear weather & storms; of calms & winds; of overflowings & of droughts; of the quiet motion of the sea, & the boisterous times of waves; of the anniversarie changes of times, either when the Sũmer shall be tossed with tempests, or the Winter scorched with heat; or when the Spring shall be clothed with the nature of Autumne, or Autumne imitate the Spring. Tea (saith he) *by these some have foreshewed when there should be a shaking or trembling of the earth, with infinite other things which have certainly come to passe, insomuch that it may be truly said, The starres were appointed for signes and seasons.* Thus farre *Philo*: then which what can be plainer?

The Starres are causes as well as signes.

Neither are we to take them as bare, naked, and simple signes onely, but as causes also of worldly events: which whilest some have denied, what do they but runne mad with reason, and plainly oppose themselves to more then common sense? For it is certain that the same thing may be both a signe and a cause: a cause, as it worketh to an effect; and a signe, as, being presented to the sense, it leadeth us to the knowledge of the effect: And therefore when the starres are called signes, their causalitie is not excluded. Howbeit, in some things when they work upon a subject not immediately but by accident, they be then occasions rather then causes.

But let me enlarge my self upon this discourse a little more: and because some have denied that the starres have any virtue at all, or that we ought to atttibute no more power to them then to the signes at an Inne-keepers post or tradesmans shop, I purpose to shew the vanitie of that errour as plainly as I can, both by Scripture, and also by daily experience.

And first for Scripture. Those oracles tell us that great is

is the force and dominion which the ſtarres have; heaven being the admired inſtrument of the glorious God, whereby he governeth the frame of this corruptible world. For had the heavens and ſtarres no force at all, the Scriptures would never diſtinguiſh between the ſweet influences of the *Pleiades*, and the binding virtues of *Orion*: but the Scripture makes ſuch a diſtinction: therefore the ſtarres have their power. The *minor* is proved out of the book of Job, chap. 38. 31. where the words are theſe, *Canſt thou bind the ſweet influences of Pleiades? or looſe the bands of Orion?* by which ſpeech the Almighty doth not onely ſhew that the ſtarres have their virtues, but alſo declare that their power and virtue is ſuch as no man on earth is able to reſtrain, unlooſe, or bind it: and here S. *Auſtin* alſo teacheth us, that God comprehendeth all the reſt of the ſtarres, by the figure *Synecdoche*, putting the part for the whole; which is an intimation that the reſt have their ſeverall virtues, as well as theſe. For further proof whereof ſee, concerning ſome of the other, in Deuteronomie, chap. 33. 14. *Of Joſeph he ſaid, Bleſſed of the Lord be his land, for the precious things of heaven, for the dew, & for the deep that coucheth beneath, & for the precious things brought forth by the ſunne, and for the precious things put forth by the moon*: where we ſee that the ſunne and moon have power to thruſt forth the fruits of the earth. And again, * *I will heare the heavens, and the heavens ſhall heare the earth*: where ſee laſt of all, that the vegetation of the fruits of the earth dependeth not upon one or two conſtellations, but upon the whole heavens.

* Hoſea 2. 21.

Alſo were the ſtarres and lights without power, the Scriptures would never tell us of their dominion over the earth: but the Scripture ſpeaketh of their dominion: therefore they be not deſtitute of power and virtue. The *minor* is proved in Geneſis, chap. 2. 1. and in the ſecond book

book of Kings, chap. 17. 16. and chap. 21. 3. and chap. 23. 5. and in Jeremie, chap. 19. 13. and in Zeph. chap. 1. 5. and in the Acts, chap. 7. 42. For in all these places the holy Ghost calleth the starres, the *host* and *armies of heaven*; thereby amplifying the divine power of God by the force and power of these glorious creatures: and this also is further confirmed by that in the song of Deborah, Judg. 5. 20. where it is expressely testified that *The starres fought from heaven, the starres in their courses fought against Sisera.* Thus farre Scripture.

And now let experience also speak, that thereby they who will not frame their understandings to be taught by the one, but will seek for strange expositions, may be forced to yield and acknowledge the truth by compulsion of this other: in the front whereof, I cannot but remember the noble * Poets saying,

Senselesse is he, who (without blush) denies
What to sound senses most apparent lies:
And 'gainst experience he that spits fallacians,
Is to be hist from learned disputations:
And such is he, that doth affirm the starres
To have no force on these inferiours.

* Du Bart.

1. As for example, when the sunne shifts his habitation, how diversly are the seasons differing! insomuch that although the frostie beard of winter makes us tremble and shiver through extremitie of cold, the warm lustre of the summers raies causeth us on the contrary to sweat and as it were pant through heat.

2. Also the terrible accidents that succeed eclipses may not be forgotten nor vilipended: for these testifie that the sunne, by his heat and light, quickeneth, after an admirable fashion, all earthly creatures, being as it were the sourse and conserver of vitall heat; and that the moon also hath a great power over inferiour bodies. For if it were otherwise, such lights coming to be hidden from

from the earth, where there is a continuall revolution of generation and corruption, could not cause after their eclipses the nature of inferiour things to be so altered and weakened as they are, both in the elements, and also in bodies composed of them.

3. And furthermore, who seeth not how orderly the tides keep their course with the moon? of which I have spoken in the third dayes work.

4. Also, it is an observation that seldome faileth, *viz.* that we have thunder and lightning in the summer time at the meeting of Mars with Jupiter, Sol, or Mercurie; and for the most part great winds, when Sol and Jupiter, or Jupiter and Mercurie, or Mercurie and Sol, are in conjunction.

5. And again, the increase and decrease of bodies, or of marrow, bloud, and humours in the bodie, according to the increase and decrease of the moon, doth speak for that horned queen, and signifie that her virtue is not little. For as she fills with light, the marrow abounds in bones, the bloud in veins, the sap in trees, the meat and moisture in the oister, crab, and creafish.

6. Moreover, experience also teacheth, that all such wood as is cut for timber, if it be not cut after the full moon, will soon be rotten.

7. Also those pease which are sown in the increase, never leave blooming. And (as some report) the pomegranate will bear no fruit any longer then just so many years as the moon was dayes old when it was first set and planted. The *Heliotropium*, with certain other flowers and plants, we likewise see that they keep their course with the sunne. And *Plinie* reports in his 37. book at the 10 chapter, that the *Selenite* is a stone which hath the image of the moon in it, increasing and decreasing according to her course in the heavens. And doth not *Cardan* also report for certain (as Sir *Christopher Heydon* testifieth)

testifieth) that *Clement* the 7 had a precious stone, in which there was a little spot, that according to the sunnes motion every day rising and setting did turn about, and both appear and vanish in the stone ?

8. Also, Physicians find the daily alteration of sick spirits to be ruled by the moon ; and that therefore their observation of criticall dayes is no vanitie.

9. And again, experience hath also witnessed that those children which are born in the new moon, or in the time of an Eclipse, Saturn or Mars in a bad aspect to the moon, those children (I say) do seldome live till they be weaned, but die either sooner or later in the time of their nursing. To which purpose* *Joachimus Hellerus* also speaketh, saying, *Qui prope luminarium Synodos eduntur in lucem, Saturno aut Marte infeliciter lunam respiciente, ii naturâ imbecilliores evadunt, ac plerique intra nutritionis annos extinguuntur; quod & ego domestico malo filii primùm, deinde filiæ obitu, & alii infinitis exẽplis experti sunt.* And he gives this reason of it. *For when* (saith he) *the* Humidũ radicale *which keeps life and soul together, is made weak in those small bodies by reason of the thinnes of it, then by the combustion of the moon, wherein all humours are sensibly wasted, it is easily consumed by too much drines: whereupon those bodies thus affected are consumed for lack of naturall moisture.*

*Ex Marstallero in his *Astrologiæ encomia.*

I conclude therefore, that as it is with herbs growing on the ground, so with starres moving in the skie ; *viz.* that as herbs have their naturall qualities and operations, so the starres likewise work on this inferiour world, by their qualities and naturall virtues.

Howbeit this operation is measured and squared according to the matter whereinto it is received : as for example, we find that the moon is more operative in moist bodies, then in others lesse participating of such a qualitie: and so also for the sunne, the heat of it is most where the subject is best capable of it.

Come

Come we also to man, and on him likewise the heavens have their operation, working distempers both in bodie and mind, as appeareth Matth. 4. 17. where we see, that the people offer the lunatick to be healed of Christ. Now this disease of lunacie, is a disease whose distemper followeth the course of the moon, as is evident by the judgement of all Physicians.

But here I would gladly enlarge my self a little further; and then man must be distinguished into two natures: the one materiall in respect of his bodie; the other spirituall in respect of his soul: And see now how the heavens work on him.

1. As for his materiall part, it cannot be exempted from their operations: For it is not onely a truth built upon the testimonie of learned Physicians and expert Philosophers, *animantiu corpora à lumine planetarum affici*, that the * bodies of living creatures are affected with the light of the starres, and that all of them have a great force in the right ordering or disordering of their * temperaments; but even experience seeth how the change of * aire changeth us in our bodies, the humours and parts being stirred by celestiall influence, especially by the moon, according to whose changes our bodies daily undergo an alteration.

2. As for the humane soul, how farre, or whether not at all it be governed by the starres, is a matter of great consequence: yet I am confident that we may somewhat clear the doubt by this distinction, *viz.* that the heavens work not immediately upon the soul, but mediately by the humours & corporeall organs whereof the souls operation dependeth. For the operation of the soul, whilest it is in the bodie, dependeth merely on materiall and corporeall organs: and the elementarie matter, whereof these organs consist, is subject to the operation of the heavens, even as any other elementarie matter: In which regard it

* *Alia positus alias affectiones imprimunt; vel concitatis scilicet turbatisve humoribus, vel sedatis ac purgatis, vel serenatis ac collustratis spiritibus, vel excitatis ac roboratis principum membrorum facultatibus.* Goclen. Disp. Phys.

* *Crases mortalium membrorum sive corporum, etsi multa sumunt à materia seu à semine, tamen certum est, eas valde temperari potestate sideruum, & ab eorundem positu variari & gubernari.* Idem ex Pucero.

* *Nec verò dubium est, ut solis & lunæ, ità cæterorum planetarum lumen variare tempestates, & aerem, & corpora nostra afficere.* Marst. ex Melichii Orat. de Astrol.

it may be affirmed that the heavens in some sort do work upon mens minds and dispositions. And hereupon it comes to passe, that Mars doth sometimes sow the seeds of warre by his working upon adust choler, and the like. Or the aire, being greatly out of tune, causeth not onely many sicknesses, but strange disorders of the mind; and they breaking out into act, do many times disturb states, and translate kingdomes, work unluckie disasters and the like: of which I spake before in the * second dayes work.

*Chap. 5. Sect. 2. Parag. 4. Artic. 1.

And now know that if the operation of the heavens in this, be but so farre forth as the soul depends upon the bodily instruments, all that is done to the soul is but an inclination: for there can be no compulsion, where the cause is so remote. And therefore let it be observed that it is one thing to cause, another thing to occasion; or one thing to inferre a necessitie, another thing to give an inclination: The former we cannot averre to be in the power of the starres, forasmuch as mans will, which is the commandresse of his actions, is absolutely free from any compulsion, and not at all subject to any naturall necessitie or externall coaction. Howbeit we cannot deny a certain inclination, because the soul of man is too much * indulgent to the body, by whose motion (as one worthily observeth) it is rather perswaded then commanded. There is therefore no Chaldean fate to be feared, nor any necessitie to be imposed upon the wills of men; but onely an inclination: and this inclination is not caused by an immediate working of the starres on the intellectuall part or mind of man, but occasioned rather mediately, or so farre forth as the soul depends on the temperaments and materiall organs of the bodie. In which regard I hope never to be afraid of the signes of heaven. neither is there cause why I should ever curse my starres, seeing

*How our minds do sympathise with the body, see in the 2. day, Chap. 5. Sect. 2. Parag. 4. Artic. 1. *prope finem.*

I

I know in this the utmost of their power. And as it was said to that Apostle, *My grace is sufficient for thee*: so may every one take it for granted, that there is a second birth which overswayes the first. To which purpose one makes this an observation,

Justè age------Sapiens dominabitur astris;
Et manibus summi stant elementa Dei.
Do godly deeds, so shalt thou rule the starres;
For then God holds the elements from warres.

Or, as another not unfitly also speaketh,

Qui sapit, ille animum fortunæ præparat omni,
Prævisúmque potest arte levare malum.
The wise, for ev'ry chance doth fit his mind.
And by his art makes coming evils kind.

*C hirom. lib. 5.

And in a word, that pithie * saying of *Joannes de Indagine* shall close this Article, *Quæris à me quantum in nobis operantur astra? dico*, &c. *Dost thou demand of me how farre the stars work upon us? I say, they do but incline, and that so gently, that if we will be ruled by reason, they have no power over us; but if we follow our own nature and be led by sense, they do as much in us as in brute beasts, and we are no better. For*, agunt, non cogunt, *is all that may be said.*

Artic. 2.

Whether it be not a derogation from the perfection of things created, to grant that the starres have any kind of power over the actions of men.

AS for the power which the starres can have in this kind, I have, in the end of the former Article, alreadie declared. Howbeit, that I may leave as few scrupples behind me as I can, my purpose is to clear this question a little more. For it hath been the serious perswasion of not a few, that (according to the tenet of *Basill*, in his *Hexameron*, & some others) the dispositions of men may not

not be imputed any whit to the starres, without wrong either to God or them. If (say they) vicious inclinations or evil actions be stirred up by the starres, then God should be the cause of humane outrages, wickednesse, and the like. Or again, if the moderation of our actions dependeth upon the starres, then many absurdities would follow. For first, those starres whose aspect is said to be evil, should either of themselves be created evil by their maker; or else it must be that in respect of their own wills they made themselves evil afterward: neither of which may be affirmed. Not the first, because every thing that God made was very good, Gen. 1. Nor the second, because seeing the starres are inanimate and creatures without life and soul, it were wickednesse to attribute a will unto them.

Hyperius Method. Theol. lib. 2.

To all which objections and doubts it may be thus answered, *viz.* that the starres are no malicious agents, voluntarily striving to do mischief to the world; but rather such as do harmlesly send down their naturall influences and powers into the Universe: and had it been that man had not fallen, their inclinations in him had been no inclinations, nor their power in occasioning felt any jot at all: The evil proceeds from the nature of man, who lost his puritie and strength of will, in yielding to that which was forbidden: it comes not from the starres, but from our selves. And so* *Melanchthon* doth in effect answer to that of *Basil*, saying, that we ought in this to consider what excellencie of condition our humane nature hath lost; and thereby observe how grievous and evil sinne is, by which our temperatures are become brutish; and not rashly condemne, or without consideration go throw the starres out of heaven. For in this present state of things (*Nè nunc quidē stellas scelerū causas esse*, they be his own words) we say not that the starres are causes of our sinne; in regard, that though our inclinations

**Præfat. in lib. Joh. Schon. de judiciis Nativ.*

rise from them, yet they are not sole or chief causes of our actions, but our will is the principall cause thereof, which was first created in perfect libertie, by which it both had power to withstand, even as still it ought to refrain all inordinate inclinations. *Non enim fatalem necessitatem constituimus, nec cogi Neronem à stellis, &c.* For we do not constitute fatall necessitie, nor affirm that Nero was compelled by the starres unto his so great and monstrous sinnes: but yielding to his lusts he willingly entertained those rages, which the devil more and more instigated, and so became worse then his nature (though bad enough) had made him. Hitherto *Melanchthon* to that of *Basil.* Wherefore when we fall into a due consideration of these things, and find that it was the fall of our first parents which hath induced this disproportion between our natures and the influences of the starres, we shall soon see where the fault resteth, namely in our selves. For (as that worthy * Knight observeth) we must consider, that the impression or operation of every agent is alwayes answerable, not to the power of it self, but to the capacitie and aptnesse of the patient: according to which rule, the starres produce their effects, even as the subject or matter is, in which their influence doth work. Which is but as I said before, *viz.* that if man had not fallen, their inclinations in him had been no inclinations, nor their power in occasioning felt any jot at all. For as the fire hurteth sore eyes, but warmeth cold hands; so the starres are *formaliter bona*, although *effectivè* (according to the unapt qualitie of the subject) they produce a sad effect. Or, to use again the words of the said authour, as we see the wine, which is healthfull and comfortable to some, how quickly it hurteth the constitution of another who hath but a weak brain; so the sunne doth soften and melt wax, but stiffen and make clay hard: yet no man for this affirmeth either the wine to be drunk, or the sunne

*Sir Christopher Heydon.

to

to be formally soft, or hard. Wherefore (saith he) by this I may boldly conclude, that although it be confessed, that the starres are efficient causes of our inclinations; yet there is no consequence to conclude them such themselves as the effects are that they produce: for where the fault resteth, hath been declared. Furthermore, he also proveth against those who say the starres are tainted in being causes by accident, or occasions many times of ill; he proveth (I say) that every occasion to sinne is not to be accounted a provocation to sinne, or to be held unlawfull: for if this were admitted, we must also pollute God himself with sinne, because he hath made fair women, and sweet wine, by means whereof many men fall; yet nevertheleſſe none will denie them to be good: for they have their lawfull use and right end. Wherefore he doth here also excellently conclude, that as no man will say, that the Physician or his medicines do sinne, though, when they restore a spent and diseased bodie, accidentally they procure lust: no more are the starres to be accounted bad or to sinne, though in constituting the temperature of our bodies, they may be truly confessed causes by accident, or occasions of sinne. The question is therefore resolved, that it is no derogation from the perfection of things created although we grant the starres to have a kind of power over the actions of men: which power, both how and what it is, hath been declared.

Artic. 3.

Of predictions, or whether the signes of heaven may be understood or searcht into.

THey be Davids words, that *The works of the Lord are great, & sought out of those who have pleasure therein.* And Moses here, in testifying that God created

the ſtarres for ſignes, doth likewiſe ſhew that they may be underſtood; otherwiſe to us they vvere no ſignes at all. Neither do I doubt, but that even Moſes himſelf, and Daniel likevviſe, vvho vvere* brought up, the one in the learning of the Egyptians, the other in the skill of the Chaldeans, did underſtand the ſignification of theſe ſignes. And from vvhence vvas it that thoſe nations had their knowledge, but from Noah and Abraham, if *Joſephus* or *Beroſus* may be credited? For concerning Noah, do not thoſe Authours ſtorie, that ſoon after the floud he taught the Armenians and Scythians the ſecrets of theſe things? Whereupon they ſaid, that he participated of a divine ſpirit. So alſo Abraham, that Father of many nations, did equally inſtruct the Chaldeans and Egyptians: although indeed afterwards it vvas their bold adventure to mix magick, and ſuperſtitious vain inventions, with this their lawfull skill.

Act. 7. 21. Dan. 1. 17.

The natures of the ſtarres may be known.

And for us, experience hath travelled in the manifeſtation of the ſeverall qualities belonging to the lamps of heaven. For as vve knovv the fire to be hot, the water moiſt, this herb to be cold, that to be drie: ſo alſo by obſervation, it doth manifeſtly appear that the ſunne gives heat and cheriſheth, the moon moiſteneth, Mars drieth; and ſo of the reſt. Or thus, ♄ Saturn is cold and drie, ſtirres up and increaſeth melancholy. ♃ Jupiter is temperately hot and moiſt, works moſt upon ſanguine complexions, ſtirring up and increaſing that humour. ♂ Mars, through his heat and immoderate drineſſe, ſtirres up and increaſeth choler; and ſo, often proves an accidentall cauſe of brawlings, fightings, warres, and the like, beſide ſuch ſickneſſes as may come by the ſuperabundancie of that humour. ☉ Sol is moderately hot and drie, greatly cheriſhing all kind of creatures. ♀ Venus is cold and moiſt, but it is in a temperate manner; and as for her operation it is ſeen moſt in flegmatick complexions.

ons. ☿ Mercurie is said to be drie in respect of his own nature, but joyned to any of the other Planets, he puts upon him their natures, and works as they work. Then followeth ☾ the Moon, and she is well known to be the mistris of moisture. Neither can you truly say that it is impossible to find their natures to be either thus or thus: for it is but 30 years that the longest of these did ever spend in his periodicall revolution: and but 72 years (as *Tycho* teacheth) can runne about whilest the fixed starres alter one degree in their longitude. Insomuch that Saturn (whose period is but 30 years) cometh twice to the same point of heaven before the eighth sphere is moved one degree: and Jupiter (whose revolution is 12 years) cometh 6 times to the same place: and Mars (who accomplisheth his period in little lesse then 2 years) meets 30 times with the same starres in the same place: and as for the Sunne, Venus, Mercurie, and the Moon, their meetings with them be oftner. Also it is certain that the great conjunction of Jupiter and Saturn, is once every 20 years; and Mars and Saturn visit each other in lesse then every two years: by means whereof it is no hard thing, or as a thing impossible, to find out the simple natures either of the Planets or fixed starres.

And from these natures thus known, and their mixtures, and places observed, it is that the effect is foreseen and the judgement given: which, if it be modestly, carefully, deeply, and deliberately done, by one well versed or conversant in these things, doth for the most part happen as is foretold; for the most part, I say, and not alwayes. For as the Physician knoweth that the same portion of either single or mixed simples, will not work upon all bodies alike; so neither can the like portion and power of qualities stirre up, or work alwayes *ad idē*, but may sometimes receive either intention or remission, according

cording to the indisposed aptnesse of the subject, the elements or elementary bodies not alwayes admitting of their powers alike; or when they be overswayed by more potent and prevailing operations. For universall and particular causes do many times differ, and then the one hinders the operation of the other. As for example, particular causes (as the conjunction of Venus and the Moon, or some such like meeting) may promise rain, snow, or sleet, when universall causes (which are not so easily seen) do often turn it into more fair and warm weather. And so also particular influences may seem to work upon such or such humours, and thereupon make the bodie subject to this or that sicknesse, and the mind enclined to this or that kind of action, vvith many such other like things: howbeit it may so happen that nature may be at this time so abstrusely shut up, that what vve see not may overpovver and vvork beyond vvhat we see.

A man had need therefore have *Argus* his eyes to pierce throughly into these causes, and examine without rashnesse either what may help or what may hinder; otherwise his judgement may fail him even in things wrought by the course of nature (for of other things he ought not to judge.) And indeed when there is a divers mixture of qualities, all in a manner of equall portions (as it may sometimes be) how hard a thing is it then to find out (without a sound judgement) the true event! for there be many difficulties proceeding from the weaknesse of our judgements. And for that again which I said before of natures abstruse kind of working, although I be no Stoick to tie Gods mightie hand to second causes, yet I verily suppose that all things are not beyond the course of nature which seem to be extraordinarie; but even many strange seeming things are wrought by the power of nature: as sometimes in unwonted

wonted ſtorms, tempeſts, droughts, ſtrange appearances, or other like accidents. And this again I alſo think, that one man may ſee the cauſe when another cannot: whereupon it comes to paſſe that there is ſuch diverſitie of judgements and thwarting of opinions many times about one and the ſame thing. Alſo I might adde ſomething (which one or other will be readie to object) concerning the devils permiſſion in raiſing unwonted winds, ſtorms, and ſuch like. Or I might ſpeak, not onely of Gods power, but of his providence likewiſe in diſpoſing his creatures to manifeſt their operation rather in one place then in another; which is an act proceeding from his ſecret purpoſe and divine wiſdome: as when the clouds (according to his decree) do disburden themſelves of their wearie drops rather here then there, or there then here: For, ſaith he in the 4 chap. of Amos, at the 7 verſ. *I have cauſed it to rain upon one citie, and it hath not rained upon another, and the citie where it hath not rained was barren.* But I ſhall not need to meddle further: For (notwithſtanding theſe difficulties) it is manifeſt enough that the ſignes of heaven may be both ſought into, and alſo in ſome ample meaſure underſtood.

For it is true that God Almightie having both ſet and foreſeen the courſe of nature long before, doth now uphold it by his providence, inſtrumentally to perform his will. Neither every day doth he make the windows of heaven to ſtand open, or the fountains of the great deep to be broken up; nor yet doth he every day make the ſunne or moon to ſtand ſtill, or the ſhadow to go back, or an Eclipſe to be at a quite contrarie time, or the moon again to ariſe before her uſuall courſe: but hath undoubtedly left his works to be *ſought out of all thoſe who take pleaſure therein*; and, according to that portion of ſound judgement which he hath given to

every one, they may understand either more or lesse of these signes: For as one starre differeth from another in lustre and beautie; so one mans knovvledge and better judgement transcends not seldome above the rest. Neither can the devil every day have it in his commission to go and blovv dovvn houses upon the heads of *Jobs* children. Nay (saith one) if these significations are not to be considered, vvhy are they so divinely vvritten and painted in the heavens? Surely it vvere impietie altogether to pluck or dravv avvay our minds from the observation of these things. For if the heavens (as they do) declare the glorie of God, or the firmament shevv forth his handie vvork, we may well believe that they expresse vvhat God effecteth by them: for othervvise every thing vvhich God created, doth declare his handie vvork as vvell as they. Eclipses, Conjunctions, Prodigious sights, Flashings, Comets, Nevv-starres, vvhat are they but the Oracles of God? by vvhich, changes, alterations, and sundrie calamities are threatned to the vvorld: And these, if any one contemne them, vvhat doth he but despise the admonitions of God? Also, how much these observations have profited the Commonvvealth, let *Thales* teach us: For they that have *Thales* his skill, may by these signes judge of cheapnesse and plentie, of dearth and dearnesse, vvith other like things, vvhose knovvledge cannot but be profitable to the life of man.

The signes of heaven must not be abused.

Onely bevvare that more be not attributed to the heavens, then to him that made the heavens; not more to the servants then to the Master, as they did vvho made them Gods; or they vvho trust and relie upon them, not daring to take a journey, or begin a vvork, or speak vvith a friend about any busnesse, vvithout a needlesse consultation: And yet I think that a vvise man, not void of religion, may make very good use of elections agreeing to the *Radix* of the nativitie; vvhen others

may

may erre superstitiously, and doat about they know not what.

Also know that the observing of these signes must not be mixed with magicall spells, as charmers do, when in stead of using, they come to abusing of herbs: For as the herbs on the ground were not made to be abused in such damned and forbidden practises; no more were the starres in the skie. Neither ought the observing of these signes to be mixed with characteticall practises, diabolicall or superstitious divinations, making of images under such or such a constellation, dangerous elections of times, either to procure good or bring down ill from heaven, as they did who blasphemously maintained, that men are long-lived and their souls go to heaven when Saturn is in Leo: or they, who have not quaked to affirm, that when the Moon is joyned with Jupiter in the head of the Dragon, whatsoever a man then asketh at the hands of God, he shall receive. Nor were they made to decide horarie questions, or sortilegious demands. Neither do I think them to be of any use for the finding of things lost: for this (as that worthie knight observeth) pertaineth onely to that part which judgeth by questions, which neither *Ptolemie*, nor those of best judgement do use; giving us also to understand, that a certain Priest (as is mentioned in the second chapter of *Gregories* decrees) was suspended from his ministerie at the Altar, for practising to recover a theft by his Astrolabe. And indeed, to those who passe beyond the bounds of what is warrantable, this I urge; that the starres were never made to justifie the dangerous practises of wicked impostours, nor to give answer to the causelesse curiosities of superstitious demanders: for neither in sound Philosophie, nor in the holy Word of written veritie, can there be any succour found for such devises.

Sr Christopher Heydon in his defence of judiciall Astrologie. *cap.* 2. *pag.* 54.

And last of all whereas I gave notice in my former edition

dition, that the Asterismes or Constellations (by reason of a slow motion which the fixed starres have, sliding from the Equinoctiall point about one degree in 72 years) are now removed into other signes of the divided Zodiack, I still affirm it as a truth: howbeit, in that passage of mine, I do willingly retract so much as may give any man occasion to think that therefore the Planets must have their houses, exaltations, triplicities, terms, &c. in other signes then in those of old. For although the Asterismes or Constellations be removed, yet nevertheleſſe those virtues and influences which proceed from the parts or substance of heaven remain as they did: and therefore though the nature of the signes in the Zodiack may in some particulars be either intended or remitted; yet not abolished. And so *Ptolomie* also mentions: for in that example alledged by the Knight, he teacheth us, that the Asterisme, or image of Scorpio, consisteth of starres that are chiefly martiall; yet nevertheleſſe, that the substance of the signe doth moisten and infrigidate: so that the places have their virtues, as well as the starres, and are distinctly to be considered; that thereby the effects may be the better discerned. I was therefore formerly not a little mistaken, to think that the signes had quite lost their old properties; which now I see even *Ptolomie* sheweth cannot be, so long as the substance of heaven remaineth.

Idem, cap. 18, pag. 375. 376. & 377.

Parag.

Parag. 3.

Of that other Office given to the starres; viz. that they were appointed to be heavenly clocks, and remarkable measures of Time and the parts thereof.

This Office is laid down in these words, *And let them be for seasons, and for dayes, and for years.*

Artic. 1.
Of Seasons.

IF we take seasons, dayes, and years together, it is no hard thing to see how the whole and parts are joyned. For *Tempus* is the whole: and *Annus* is *pars temporis*: *& Dies* is *pars anni*. Not that these are the onely parts of time; but because the other do chiefly consist of these. Howbeit, seeing they be laid downe severally, it is fit they be explained sunderly. And first of Seasons.

We need not with the Jewes understand here their feasts onely, and anniversarie dayes of solemnitie; for then this distinction of seasons had not been in use till after the coming out of Egypt: neither is it enough to applie them to the monethly revolution of the moon, or to the sunnes changing into a new signe or partition of the Zodiack. But by the name of *Seasons*, we ought rather to be led unto those *quatuor anni Cardines*, or foure Quarters of the yeare, when the reviving Sunne crosseth the Equinoctiall, and again toucheth upon either Solstice: which last, is (as it were) *Solis statio*; because the dayes seem to stand at a stay: and the two other have their names from equall day and night, because the dayes and nights are then of equall length, Sol cheerfully riding in his gold-like fierie Chariot, just in the middest between the Artick and Antartick Poles. For these were those seasons which God again established for ever, when he renewed that

that face upon the decayed world, which by the impartiall Floud was blemished: saying, (as it is in Gen. chap. 8. 22.) *While the earth remaineth, seed-time and harvest, and cold and heat, and summer and winter shall not cease.*

And as for us, we commonly call these times by the names of *Spring*, *Summer*, *Autumne*, and *Winter*.

Spring. The Spring is a time never unwelcome, nor unwished: for the weather begins then to appear like a pitifull and truly kind-hearted cherisher; and *Sol* ascending, disperseth the superfluous humours, stirreth up the bloud in our bodies, and sap in herbs and trees; clothing the earth with sweet new liveries, and plants with boughs and beauteous branches: nay the harmlesse choristers of the rebounding woods and echoing groves, do then begin to tune again their sugred throats, and ravish revived mortalls with their melodious aires; bidding good morning to the day, and morrow to the morn. For no sooner can *Aurora* wake, and peep above the purple verges of the Eastern hills, but cheerfully they chaunt her out a mirthfull cantilene: whilest in the mean time, sweet-breathing *Zephyrus* playes with the wanton tresses of his late dead, and decayed, but now again revived mistris; and in comely hue doth beauteous *Flora* prank her self, cheerfully coming forth to meet her kind sweet-causing lover. The prettie lambes are now at play, whilest the watchfull shepherd sits piping on an hill to please that queen of his heart, his dearest shepherdesse, whom ruthfully he moveth to grant his suit, and pitie his complaint.

* Or thus, *à virendo; quia tunc omnia virent & floreant, &c.*

Ver præbet flores, saith the Poet; and from * *virescо* it may well be said to take the name. For will you heare?

The mealie mountains which were late unseen,
Change now their coats, all into lustie green.

The

The gardens prank them with their flowrie buds;
The meads with grasse with leaves the naked woods.
Sweet Zephyrus begins to busse his Flora,
Swift-winged singers to salute Aurora;
And wanton Cupid, through this Universe,
With pleasing wounds, each creatures heart 'gins pierce.
,,Yea Titans presence doth again revive
,,As well things sensible as vegetive.

Partly out of *Du Bart.*

But next after Spring we reckon Summer; which may well be called the mother of plentie and daughter of bountie. For the earth hath now her lap full of every kind of grain, her belly is bigge and ready to be delivered, that she might thereby enrich the weary labourer, and feed each hungry soul. *Formosa est messibus Æstas*, saith *Ovid*: Summers beautie consisteth in his fruitfull fields of corn.

Summer.

——For now he crowns his Ceres
With gilded eares, as yellow as her hair is;
Till th' reaper, panting both for heat and pain,
With crooked rasor crops the tufted plain.

In Latine we call it *Æstas*; which is, because this season derives the name *ab æstu* from the exceeding heat: and so also doth the English word *Summer* expresse it. For *Summer* is a word taken out of the Germane language; and in the Germane tongue it is said to be *Sunne-mehr* that is, *plus solis*, or *more sunne* then at other times.

And now come to Autumne (for Autumne is the next Quarter) and this is a season which bringeth that to perfection, which the Spring and Summer hath but begun. For now the barns are full, the presses and fats overflow with an abundance of wine and oyl, and men do now eat the late gathered labours of their hands, and joy

Autumne

joy in the surpassing plentie that the earth hath brought them. This time is indeed the years very barbour; or (if you will) it is like unto a kind-hearted prodigall, who by little and little gives all away so freely that in conclusion there is nothing left him. He takes his name therefore from *Autumno*, which signifieth *to make ripe*: for as fast as he can see the fruits ripened or brought to perfection, he yields them up to others. Or else it is *Autumne, à bonorum anni augmentatione*; as some suppose.

Th' earth by degrees her lovely beautie bares,
Fills others full with her dear delicates:
The apron and the osier-basket (both)
Catch dainty fruits to please each daintie tooth:
Untill at last trees, gardens, meads and all,
Are naked stript and robbed quite of all.

Winter. But leaving Autumne, look now at Winter: it is a season which can boast of little. For it lies entrenched with gloomie mists of night, and weeps almost as often as it wants the sunne, or finds it hid within the compasse of a close cloud. Nay see but with what a palsie pace it cometh. He that of late was sweating in the fields, casting off his clothes, and fainting through heat, is now glad to call for more and thicker garments, and not ashamed by the help of fire to mitigate the freezing cold. For Winter is like unto an old man with a gray head and white beard; insomuch that when hoarie-headed *Hyems* doth but brush or shake his hairs, the trees and herbs, (as I may so say) in stead of leaves, are periwigd with snow: Or if he doth but let his churlish breath blow out upon us, the waters are turned soon into a crystall crust, and without wonder men are seen to walk upon it. *Et celsis dependet stiria tectis*; yea and the drops hang frozen then at the eaves of houses. That

That therefore of *Ovid* must needs be true, *Igne levatur Hyems.* To which let that * *Bacchi massicus humor* be also added: For these two will now do wondrous well; according to that of the noble Poet,

All lusks in sloth; and till this quarters end,
Bacchus, and Vulcan both, must us befriend.

This season is called by the Latines *Hyems*, which seemeth to be derived from the Greek word * ὕω, signifying to make moist or wet: And in Hebrew (as some affirm) it is called *Chereph*, coming of the root *Charaph*, which signifieth to reproch, or disgrace; because when winter cometh, the earth is as it were disgraced and exposed to reproch, in being spoiled of all its pleasant greennesse, beauty and splendour.

And in a word to shut up all, thus you may remember these seasons, together with their sundry qualities:

Poma dat Autumnus: Formosa est messibus Æstas:
Ver præbet Flores: Igne levatur Hyems. Ovid.

Autumne gives fruit: And corn makes Summer fair:
Spring shews us gayes: Fire helps cold Winters aire.

* A cup of good wine.

* Which in Latine is *Pluo*.

Artic. 2.

Of Daye.

A Day is either artificiall or naturall.

1. The artificiall is from sunne-rising to sunne-setting, agreeable to the words of our * Saviour, when he demanded if there were not twelve houres in the day.

Novv this kind of day is not alvvayes equall, but varies according to the sunnes unequall time of rising and setting; and thereupon the houres likewise are to be reckoned according to the dayes proportionable difference; being (even as the dayes) longer in Summer then in Winter.

* Joh. 11. 9.

Also

Also for this artificiall day, *Joannes de sacro Bosco* divides it into foure quarters; calling the first *rubens*, the second *splendens*, the third *urens*, and the fourth *tepens*.

2. And as for that which is a day naturall, it evermore containeth the just number of 24 equall houres; in which space of time the sunne is carried by the motion of the *Primum Mobile* from any one part of heaven untill it comes to the same point again.

This kind of day amongst divers nations hath divers beginnings.

Midnight. England, the 16 Provinces, some part of Germanie, the Mysians, and the Romanes, account from midnight untill midnight; because at that time (as is supposed) our Lord was born: and from hence, as *Verstegan* thinketh, came the word *Seanight*, being a week of dayes and nights, or a *Sennight*.

Sun-rising. The Babylonians, Persians, Norimbergians, &c. begin at sunne-rising, (and so do our *lawyers in England, ending again at sunne-setting: for he who hath a summe of money to pay on a set day by bond, neither before nor after sunne, need tender his money:) These, I say, begin at one sunne-rising, accounting untill the next; according to that of *Plinie, Babylonii* (saith he) *inter duos solis exortus*.

*Which in them or all within the Parenthesis, thoughit be here inserted, is meant of the artificiall day.

*Lib. 2. cap. 79.

Noon. And as for the Umbrians, Arabians, and Astronomers, they reckon from noon untill noon again.

Evening. But the Athenians, Jews, Silesians, Italians, Bohemians, &c. account alwayes from the evening or setting of the sun; beginning their day when the night approcheth and the sunne departeth, being as it were gone to his bed or western rest.

1. They who begin from midnight may seem to have this warrant, *viz.* that the sunne is then again returning towards our Hemisphere; and (as I said before) midnight is that time when the sunne of righteousnesse arose to the world. For it is supposed that Christ* was born about the

*Which is but an uncertain supposition.

the middle of the night, whilest the shepherds were keeping watch over their flocks. The day therefore beginneth from midnight.

2. Again, they who account from the time of sunne-rising have this plea, saying that the day is fitly to take beginning, when the cause thereof, *viz.* the sunne, doth first appear and shew himself to the inhabitants of the world, calling them out unto their daily labours, and summoning them by his beauteous light to arise, and leave their sleepie beds. Therefore when the sunne ariseth, the day beginneth.

3. Also, they who reckon from noon, suppose that they ought to account from that time when the sunne is in the most* eminent place of heaven, and hath the greatest number of eyes enlightned by it. And as for Astronomicall calculations, this also is the fittest time, because it falleth alwayes at one and the same certaintie. The day therefore beginneth from noon.

*Which they suppose to be the place it was first set in when it was made.

4. Last of all, they who begin from the setting of the sunne have (as they think) the truest and strongest plea. For this beginning they suppose to be agreeable to the whole progresse of the worlds creation, and best fitteth the divine institution of naturall dayes: in which whether they understand Moses in a right sense I have alreadie shewed in the first dayes work (pag. 51.) where the Reader may see, that the second of these foure is indeed the best opinion, claiming place above the rest.

Artic. 3.

Of Years.

A Yeare, being the chief and most usuall part of time, whereby the ages of men, of the world, and other things are principlly measured, is the periodicall revolution

tion of the sunne through *Mazzaroth*, or the twelve signes of the Zodiack, Job 38. 32. For by the sunnes unceſſant motion, a ſet number of dayes are as it were wheeled about to terminate one yeare, and to give each ſeaſon his due period of time. And in a true meaſured yeare, there is not alwayes a ſet or certain equalitie: For there is either the great, or the leſſer quantitie. In the greateſt quantitie a yeare hath 365 dayes, 5 houres, 56 minutes, and 53 ſeconds; And in the leaſt quantitie, 365 dayes, 5 houres, 44 minutes, and 38 ſeconds.

But if we reckon according to the courſe of the moon, then a yeare is that ſpace of time wherein the moon, after ſome conjunctions with the ſunne, is again in conjunction with him, not farre from that place where ſhe firſt met him. Or if we reckon by the other ſtarres, it is then that ſpace of time which the ſunne ſpendeth after his departure from any ſtarre, untill he returneth to the ſaid ſtarre again.

And in all theſe, the ſunne hath the chieſeſt prehemineence, is the onely guide, and moſt remarkable meaſurer. Whereupon I may not omit what I find obſerved by Expoſitours, *viz.* that a yeare hath the name in Hebrew from *Shanah*, ſignifying a *changing* or *iteration*: which is in regard of the ſunnes returning, after a years end, to the ſame point of heaven where it began. And as for the circuit of the moon, which we commonly term a moneth, it is derived from another word ſignifying *to renew*: becauſe in that ſpace the moon is again renewed: neither is it found in any place of Scripture, that theſe names are perverted, or the one of them taken to ſignifie the other; but by the one (ſay they) is meant a yeare, and by the other a moneth. See *Gib.* on Gen. chap. 5. queſt. 2. and *Ainſworth* on Gen. 1. 14.

In Latine the yeare is called *Annus*, becauſe we may ſay

say of it, *revolvitur ut annulus*. For as in a ring the parts touch one another, circularly joyning each to other; so also the yeare rolleth it self back again by the same steps that it ever went; whereupon it came to passe that the Egyptians, amongst other their hieroglyphicks, used to paint out the yeare like a snake winding her self as round as a ring, holding her tail in her mouth: *Et sic sua per vestigia volvitur annus*. The name likewise ἐνιαυτὸς, which it hath from the Greek, is agreeable to the foresaid derivation. And all this concerning naturall years.

But as for Politicall years, , they be those which are diversly used by divers Nations in their accounting of times; and they differ in lengths according as the computators fail in skill to regulate them to the motion of the heavens.

That which we now use is the Julian yeare, instituted by *Julius Cesar*, who, by the help of *Sosigines* an Egyptian, an expert Mathematician, amended the old Romane yeare, and brought it to that form in which we now have it, making it to consist of 365 dayes, and 6 houres: which 6 houres are not reckoned every yeare, but once every fourth yeare, being then increased to the just length of a day, which is alwayes inserted or put in the next before the 6 Calends of March, causing the said Calends to be twice repeated: from whence that yeare is called *Bissextile*, of *bis* and *sex*, *twice six*; or *Leapyeare*, because by this adding of a day, from thenceforth the fixed holydayes, and the like, do as it were skip or leap one day further into the week then they were the former yeare.

Now the mean length of the Tropicall yeare being defined to have no more then 365 dayes, 5 houres, and 49 minutes', sheweth that this Julian

yeare is somevvhat greater then it should be, exceeding the exactest measure which can be had, by the quantitie of eleven minutes or thereabouts; causing thereby by little and little to be an apparent anticipation of the Equinoctiall and Solstitiall points: insomuch that the Vernall Equinox, whose place at the first Councel of *Nice*, was upon the 21 day of March, is now come to be upon the 10 day of March. The reformation of which errour hath been wished for by divers learned men; and in some sort performed by Pope *Gregorie* the 13 (using likewise in it the help of *Christopher Clavius*, and some others) who in the yeare 1582, brought back the Equinoctiall day to the same place it was at the said Nicene Councel, by cutting off 10 dayes in the moneth of October, writing in the Calender next after the fourth day the fifteenth day: by means whereof all their moneths begin ten dayes sooner then ours, as do also all those feasts whose place is fixed and not moveable.

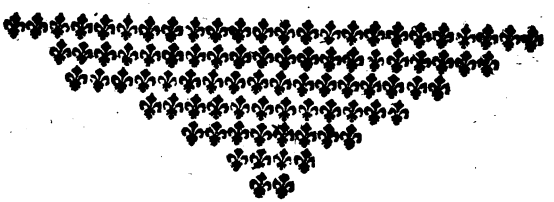
Now in this reformation it was likewise ordered that the yeare should consist of 365 dayes, 5 houres, and 49 minutes. And, that the Equinox might not be subject any more to anticipation in 400 years, they thought it fit to omit three Leap-years; The first whereof will fall into the yeare of Christ 1715; the second into the yeare 1848; and the third into the yeare 1982, if God suffer the frame of the world to stand so long.

Howbeit in thus doing, although the alteration will be very little, yet the reformation is not exactly true, because there is an inequalitie of anticipation in the Equinoctiall, as the great Masters in Astronomie teach us, being (as they say) in some ages more, and in some lesse. But seeing (as I said) the alteration will be very little, if it ever come to that, it is fit the Leap-year be then omitted.

And

And thus am I come now to the end likewise of this fourth dayes work, wherein, after my plain manner, I have discourſed upon every ſuch thing as is pertinent to the work done in it. Let me therefore concluding ſay with Moſes,

The Eve and Morn confine the fourth of dayes,
And God gives to his work deſerved praiſe.



CHAP. VIII.

Concerning the creatures created in the Fifth day of the world: and they were Fishes, and Fowls.

Sect. 1.

Of Fishes, their kinds, properties, &c.

NOw follow the works of the Fifth day: which when I consider, I cannot but admire the harmonious order which the Almightie observeth in the whole progresse of his creating. For as yet the world was but like an emptie house without inhabitants; a stately structure, having no moving creature with life and sense to be living in it; not so much as a poore flie, a fish, or a bird to taste the goodnesse of things created and made. But in this and the next day (the building thus framed, and cheer provided) he brought as it were his guests to participate of his delicates, alwayes provided that things inferiour should serve things superiour: making his best work last, namely Man, unto whom the other works were put in subordination; to shew (me thinks) that the end is the perfection of every thing.

And now see, the first day was for the matter: The second brought it into a better form, stretched out the heavens, and lifted up the waters which are above them. The third did not onely shew the face of the earth by the

the gathering together of those waters under heaven, but also adorned it with herbs, trees, and plants. The fourth beautifies the vaulted roof of the sparkling firmament with sunne, moon, and starres. In the fifth and sixth he makes all kinds of living creatures; furnishing first of all the waters and aire with their inhabitants; and last of all the earth.

And for those many creatures in the waters and aire, their creation was effected in this fifth dayes work; so that every kind of fish, and all kind of birds were now produced. God onely said it, and it was done; as by viewing the text of Moses will appear: For in all his works *he spake the word and they were made, he commanded and they were created.*

But to proceed. We need divide the whole of this day into no more then two parts: The one of Fishes, the other of Birds.

That of fishes is the foremost, and therefore the varietie of those creatures would be first admired.

And see how Moses ushers them. The greater ones are placed in the forefront: For *God* (saith he) *made great whales.* And then he proceedeth to adde something concerning the other *species* of smaller creatures living and moving in the water; saying, *And every living creature that moveth, which the waters brought forth abundantly after their kind.*

The Whale

Pareus, and other Expositours also, by the word, which is commonly translated *great whales*, understand the biggest kind of sea-beasts and monstrous fishes of the largest greatnesse. And indeed the epithet *great*, is not added to the whale without cause: For the word * *tannin* signifieth a serpent, dragon, or a great fish: and the whale or great fish is the greatest of all living creatures, as in Job 41. 33. *In the earth there is none like him.* His jaws are likened to doores, vers. 14. his scales

* Dr. Wil. on Gen.

scales to shields, vers. 15. *Out of his nostrils goeth smoke, as out of a seething pot or caldron,* vers. 20. *he maketh the sea to boil like a pot,* vers. 31.

Munst. Cosmog. *Munster* writeth that near unto Iseland there be great whales whose bignesse equalizeth the hills and mightie mountains, which are sometimes openly seen; and these (saith he) will drown and overthrow ships except they be affrighted with the sound of trumpets and drummes, or except some round and emptie vessels be cast unto them, wherewith they may play and sport them, because they are much delighted with such things. But above all, this he affirmeth to be a good remedie against such dangerous whales; to wit, that which the Apothecaries call *Castoreum*, tempered with water and cast into the sea: for by this as by a poyson they are utterly driven and banished to the bottome.

Olaus Mag. lib. 21. Other Authours mention farre greater whales then these: And *Olaus Magnus* writeth, that there are many kinds of whales. For some he affirmeth to be rough-skinned and bristled, and these contain in length 240 feet, and in breadth 120. others are smooth and plain, and these are lesse, being taken in the North and Western ocean. Some again have jaws with long and terrible teeth of 12 and 14 feet in length: and the two dog-teeth are farre longer then the rest, like unto horns, or the tusks of a boar or elephant. This kind of whale hath eyes so ample and large, that sometimes 15, 20, or more men may sit in the compasse of one eye: and about either eye there be 250 horns * *ad rigidam vel placidam, anteriorem vel posteriorem motionem & ventilationem*; serving also to defend the eyes, either in a tempestuous season, or when this fish is assaulted by any other sea-beast. *Physeter* or the Whirl-pool-whale hath a large wide mouth, but round: This is a cruel fish to the mariners,

*Idem Ibid.

mariners, and will sometimes lift up his head above the sail-yard, casting up so much water through certain pipes in his forehead, that (as the foresaid Authour witnesseth) great and strong ships are either compelled to sink, or else are exposed to great and manifest danger. Sometimes again by laying his head upon either end of the ship, he drowns it by his over-loading weight.

Some call the Whirl-pool-whales, *Balæna*. But howsoever, *Balæna* is reckoned amongst the whales, and is differing from the *Priſter* or *Physeter* which before I called the Whirl-pool-whale. *Olaus Magnus* speaking of the *Balæna*, saith that it hath no gills, but certain *Fistulæ* are in stead thereof, placed in the forepart of the head, and that it is a fish which shews great love and affection towards her young ones: For when they are little, being faint and weak, she takes them into her mouth to secure them from tempestuous surges; and when the tempest is over, she spues them again out into the sea. A fit embleme this, to teach all sorts of parents either in Church, Commonwealth, or private families, to provide for, and not destroy those under them; as also to secure them from dangers whensoever they arise.

The love of the Balæna towards her young ones.

An instruction from the Balæna concerning carefull parents.

When this *Balæna* and her male-whale accompanie together (for they increase by copulation) they scatter much of their seed in the waters, which being found by the mariners is taken and sold as a pretious drugge. Some call it *Ambra*, or *Ambergreese*, affirming that it is good *contra guttas*, and against the palsie and resolution of sinews, if it be used as an oyntment: good also to be drunk down against the falling sicknesse, and swounding; having also great power of strengthening the inward parts. It is commonly white, and sometimes counterfeited with the dust of *Lignum aloes*, and the sweet gum *Storax*, sea-mosse, and the like; but that which is sophisticated may be easily known, because it will soon be

Ambergreese comes from the Whale.

The vircues of this Amber.

How to know whether it be without sophistication.

be dissolved like wax: whereas that which is without sophistication is more solid & lesse easie to be made liquid. Thus affirmeth *Olaus Magnus*: howbeit others write that Ambergreese is the spawn of the whale. But *Avicen* is perswaded that it grows in the sea: and some again onely write, that it is cast up on the shore and found cleaving to stones there; the fume whereof is good against the falling sicknesse, and comfortable to the brain.

Munster writeth that many in Iseland, of the bones and ribbes of the biggest whales, make posts and sparres for the building of their houses: & how great profit proceedeth from the oyl of the whale, no man is ignorant.

The great whale is beholden to the little *Musculus.*

*Lib. 9. cap. 62. See also Ælian. Hist. de animal. lib 10. cap. 6. Plutarch. de indust. animalium.

* *Plinie* writeth of a little fish called *Musculus*, which is a great friend to the whale: for the whale being big would many times endanger her self between rocks and narrow straits, were it not for this little fish, which swimmeth as a guide before her. Whereupon *Du Bartas* descants thus,

A little fish that swimming still before
Directs him safe from rock, from shelf and shore:
Much like a child that loving leads about
His aged father when his eyes be out;
Still wafting him through ev'ry way so right,
That reft of eyes he seems not reft of sight.

An embleme drawn from the Whale and Musculus; shewing that the meanest ought not to be contemned.

Which office of that little fish, may serve as a fit embleme to teach great ones and superiours, that they ought not to contemne their inferiours; for they are not alwayes able so to subsist of themselves, that they never stand in need of their helps who are but mean and base in the eyes of greatnesse: there may come a time when the meanest person may do some good, and therefore there is no time wherein we ought to scorn such a one, how mean soever he be.

Furthermore, as the whale is befriended by the *Musculus*,

culus, so also he is as much infested by the * *Ork*; for albeit the *Ork* be lesse then the whale, yet it is a nimbler fish, and cruell withall, having sharp teeth, with which, as with an admired weapon, she cruelly wounds the whale in the belly, and then floating into a shallow place, endangers the whale to follow after.

The Ork dares fight with the whale. *Plin. lib. 9 cap. 6.

The *Sword-fish* called *Xiphia*, is little like to any other fish: he hath an horrid head like an owle; a deep mouth as if it were some immensive pit; ougly eyes, with a back and a bill like a sword.

The Sword-fish.

There is also another great fish called *Serra*, or a *Saw-fish*, having an hard copled head with teeth like a saw, standing in manner of a combe upon the head of a cock: with which, the said fish when she wants a prey, cutteth the bottome of ships, that the men being cast away, a prey may be provided by feeding on their carcases.

The Saw-fish.

The *Monoceros*, or fish with one horn, may fitly be called the *Sea-unicorn*: it is a sea-monster having a great horn in his forehead wherewith he is able to pierce through a ship. Howbeit his crueltie is much hindered, in regard that it hath pleased the Almighty to make him very slow in motion, whereby those who fear him have advantage given them to flie away.

The Unicorn of the sea.

The *Sea-elephant* is a fish which often goes on shore and sleeps in the rocks, hanging by his two Elephant-like teeth (but both they and his bodie are farre bigger then the land-elephant) and being espied by men at sea, they call to others on the shore, by whose help, using nets and gins and other instruments for that purpose, they together invelope his bodie, and then suddenly assaulting and awaking him, he leaps with a violent rush as if he would leap into the sea, but being hampered and entangled by the fishers engines, he cannot; he is compelled therefore to yeild himself to their mercie: who having

The Sea-elephant.

having killed him do first skin him, then take out his fat; and of his skinne they make thongs, which are sold for a great price, as being very strong and such as will never rot. *Olaus magnus* commendeth his teeth above the other parts of his bodie. *Lib.* 21. This fish thus sleeping and caught suddenly, may be as a fit embleme of those men who coming out of their right way, do fall asleep in sinne: and at last when death awakes them they think to go to heaven, or leap into the wayes of godlinesse, but then it is too late: for they are taken as surely and as suddenly, as was that fool in the Gospell, who thought he had goods laid up for many years.

An embleme drawn from the Sea-elephant, concerning sleep in sinne.

The Crocodile.

The *Crocodile*, seeing it lives in the waters as well, or rather then on land, I reckon among the fishes. They be commonly found about the river *Nilus* in Egypt, and *Ganges* in India; and (as *Munster* writeth in his Cosmographie) it waxeth of a little thing to a very great beast. For his egges are much like unto goose egges, but the young which cometh of them taketh increase to 16 or 18 cubits in length. He liveth almost as long as a man, his back is hard and full of scales; he wants a tongue, but hath cruell teeth, two whereof be farre more terrible then the other, and much longer: his eyes are said to be very dull in the water, but marvellous quicksighted when he is out of it; his tail extends it self to an ample length, and his bitings are so sharp and cruell that they can never be healed: he hath also short feet and sharp claws or nails; wherewith he helps to catch and dismember either man or beast which he can lay hold on: howbeit, it is said that he flies from those that persecute him, and persecutes those that flie him. *Munst.*

A dissembler like unto the Crocodile.

When he hath devoured a man and eaten up all but the head, he will sit and weep over it, as if he expressed a great portion of sorrow for his cruell fact: but it is nothing so. For when he weeps, it is because his hungrie paunch

paunch wants such another prey. And from hence the proverb took beginning, *viz. Lacryma Crocodili; Crocodile teares*: which is then verified, when one weeps cunningly without sorrow, dissembling heavinesse out of craftinesse: like unto many rich mens heirs, who mourn in their gowns, when they laugh in their slieves; or like to other dissemblers of the same nature, who have sorrow in their eyes, but joy and craftinesse in their hearts.

Dissemblers.

It is reported by some * Authours, that the dogs in Egypt use to lap their water running, when they come at *Nilus*, for fear of the Crocodiles there. Which cannot but be a fit pattern for us in the use of pleasures: for true it is, we may not stand to take a heartie draught, for then delights be dangerous; howbeit we may refresh our selves with them as we go on our way, and may take them, but may not be taken by them: for when they detain us and cause us to stand still, then their sweet waters have fierce Crocodiles: or if not so, they have strange Tarantula's, whose sting causeth to die laughing.

An embleme from the dog and Crocodile.
* *Ælian. var. hist. lib. 1.*
How we ought to use pleasure.

Porcus marinus, or the *Sea-hog*, is a strange kind of fish, headed like an hog, with teeth and tusks like a boar, and a bending back like a creature begotten among swine: onely his tail and hinder parts is like to the tail of other fishes, and his foure legs are like to the legs of a dragon. Such a fish as this was taken up in the Germane ocean, in the yeare of our Lord 1537, as *Olaus* witnesseth in his 21 book.

The Sea-hog.

But in *Bermuda*, or in the sea about the Summer islands, they have Sea-hogs of another kind and fashion, nothing so big nor terrible, without legs, good for food, and like to hogs in their heads.

Moreover, *Olaus* again makes mention of another fish, which they of *Norvegia* call a *Swam-fisk*: and this is the most greedie and gluttonous of all fishes. For it is continually

The Swam-fisk.

continually feeding and filling it self, even up to the very mouth, untill he can hold no more; and his prey is upon other the smaller fishes. This likewise is his qualitie and condition; when he is in fear of any danger, he will so wind up himself and cover his head with the skinne and substance of his own body, that he is then but like unto a piece of a dead fish, and nothing like himself. Which feat he seldome doth without hurt or damage: For still fearing that there be those about him who will prey upon him and devoure him, he is compelled for lack of meat to feed upon the substance of his own body; choosing rather to be devoured in part, then to be consumed by other more strong and powerfull fishes. These and such like are taken for their fat and oyl, rather then for any thing else which is usefull in them.

Covetous cormorants like to the Swam-fisk.

And unto this fish I cannot but liken all greedy cormorants and covetous devourers of other men, being never satisfied with the measure of their oppressions, but lay house to house, and field to field, untill there be no more place; as the prophet Esay speaketh, chap. 5. 8. For *they covet fields, & take them by violence; & houses, and take them away: so they oppresse a man and his house, even a man and his heritage*, Mich. 2. 2. But at the last, when they must give an account for all the things that they have done, then being oppressed by fear, as they oppressed others with cruelty, they would be glad to hide their heads, and rather consume their own selves then be given up to the tormentours; saying with them in the Revelation, *Let the hills fall upon us, and the mountains cover us from the wrath of him who sits upon the throne*, But it is madnesse to run from punishment, and not from sinne. And therefore to possesse all things, is to possesse God the possessour of all things. For omission and commission are a wicked mans confusion; and oppressours

sours may verily look to feast the devil: for while they devoure the poore, the devil devoures them.

Equus marinus, the *Sea-horse*, is most of all seen between Britain and Norway. In the Northern seas he will sometimes sleep upon a piece of ice as it floateth upon the waters: and seldome do the fishermen desire to take them in their voyages to those parts, but when they take few Whales. He hath an head like an horse, and will sometimes neigh; his feet are cloven like to the feet of a cow, and he seeks his repast as well on the land as in the sea: but his hinder parts are like to other fishes, and his tail like theirs. *Olá. lib.* 21. *The Sea-horse.*

There be also *Sea-cows* and *Calves*, so called because they do much resemble such kind of creatures living upon land. The *Sea-cow* is a great, strong, and fierce monster, bringing forth young like her self: she is said to be big ten moneths, and then delivered; sometimes of two: but oftenest she hath but one, and this follows her up and down whithersoever she goeth. *Olaus* writeth, that the *Sea-calf* is a great devourer of herrings, insomuch that coming to the side of a net wherein they are hanged, she will eat them up one by one untill few are left. And in the Indies the Spaniards use to catch a mighty fish, having large teats and dugs. *The Sea-cow* and *calf.*

And those who live at *Bermuda*, or the Summer Islands, are much beholden to that fish which they call the *Turtle* or the *Tortoise*; she will come on the shore & lay her * egges in the sands, a bushell in the belly of some one; which being taken in time are very good and wholesome meat, and sweet: but if they lie long, the sunne will hatch them. They have harping irons to catch these fishes; and being taken, one of them will serve to feast about fiftie men at a meal. And indeed those seas afford varietie of very good fish, pleasant and daintie, as I have heard them say who lived there. *The Tortoise.*

* Concerning which fish; see *Elian* also, *Var. Histor. lib.* 1.

But

The Mermaids and Mermen.

But above all, the *Mermaids* and *Men-fish* seem to me the most strange fish in the waters. Some have supposed them to be devils or spirits, in regard of their vvhooping noise that they make. For (as if they had power to raise extraordinarie storms and tempests) the vvinds blovv, seas rage, and clouds drop, presently after they seem to call. Questionlesse natures instinct vworks in them a quicker insight, and more sudden feeling and foresight of these things, then is in man; vvhich vve see even in other creatures upon earth, as in fovvls, who feeling the alteration of the aire in their feathers and quills, do plainly prognosticate a change of vveather before it appeareth to us, And of these, not onely the poets, but* others also have vvritten. The Poets fein there vvere three *Mermaids* or *Sirens*; in their upper parts like maidens, and in their lower part fishes: vvhich dvvelling in the sea of Sicilie vvould allure sailers to them, and aftervvards devoure them; being first brought asleep with hearkening to their svveet singing. Their names (they say) vvere *Parthenope*, *Lygia*, and *Leucasia*; vvherefore sometime alluring vvomen are said to be *Sirens*.

Plin. lib. 9. cap. 5. Olaus Mag. lib. 21. cap. 1. Hist. Nether. lib. 2. pag. 116. Alex. ab Alexand. lib. 3. cap. 8. Genial. Dierum.

A storie of a Sea-woman.

Neither can I but admire vvhat I find recorded in the historie of the Netherlands, of a Sea-vvoman vvho vvas taken up in the streights of a broken dike near to the towns of *Campen* and *Edam*, brought thither by a sea-tempest and high tide, vvhere floating up and dovvn and not finding a passage out again (by reason that the breach vvas stopped after the floud) vvas espied by certain vvomen and their servants as they vvent to milk their kine in the neighbouring pastures, vvho at the first vvere afraid of her, but seeing her often they resolved to take her, vvhich they did; and bringing her home, she suffered her self to be clothed, fed vvith bread, milk, and other meats, and vvould often strive to steal again into the sea, but being carefully vvatched she could not: moreover she learned

learned to spinne, and perform other pettie offices of vvomen; but at the first they cleansed her of the sea-mosse vvhich did stick about her. She vvas brought from *Edam* and kept at *Harlem*, vvhere she vvould obey her mistris, and (as she vvas taught) kneel dovvn with her before the crucifix, never spake, but lived dumbe and continued alive (as some say) fifteen years; then she died. This is credibly reported by the * Authour of that history, by the vvriter of the Chronicles of Holland, and in a book called the *Theatre of cities*. They took her in the yeare of our Lord 1403.

*Petit. transl. by Ed. Grimston.

Moreover *Plinie* telleth us of *Tritons*, and *Nereides*, vvhich vvere Mermen, or Men-fish of the sea. And in the yeare 1526 (as the Authour of *Du Bartas* his summarie reporteth) there vvas taken in Norvvay, near to a sea-port called *Elpoch*, a certain fish resembling a mitred Bishop, vvho vvas kept alive some fevv dayes after his taking. And (as the said Authour vvriteth) there vvas one *Ferdinand Alvares*, secretarie to the store-house of the Indians, vvho faithfully vvitnesseth that he had seen not farre off from the Promontorie of the Moon, a young Sea-man coming out of the vvaters, who stole fishes from the fishermen, and eat them ravv. Neither is *Olaus Magnus* silent in these things: For in his 21 book, & first chapter, having mentioned fishes like to dogs, covvs, calves, horses, asses, lions, eagles, dragons, and vvhat not? he also saith, *Sunt & bellua in mari quasi hominis figurâ imitantes, lugubres in cantu, ut Nereides: etiâ marini homines, toto corpore absolutâ similitudine*, &c. that is, *There be monsters in the sea, as it were imitating the shape of a man, having a dolefull kind of sound or singing, as the Nereides: There be also Sea-men of an absolute proportion in their whole body: these are sometimes seen to climbe up the ships in the night times, & suddenly to depresse that part upon which they sit; & if they abide long, the whole ship sinketh.*

*Lib. 9. cap. 5.

sinketh. Yea (saith he) *this I adde from out the faithfull assertions of the Norway fishers, that when such are taken, if they be not presently let go again, there ariseth such a fierce tempest, with an horrid noise of those kind of creatures, and other sea-monsters there assembled, that a man would think the very heaven were falling, and the vaulted roof of the world running to ruine; insomuch that the fishermen have much ado to escape with their lives: whereupon they confirmed it as a law amongst them, that if any chanced to hang such a fish upon his hook, he should suddenly cut the line and let him go.* But these sudden tempests are very strange, and how they arise with such violent speed, exceeds the bounds of ordinary admiration. Whereupon it is again supposed that these monsters are very devils, and by their power such strange storms are raised. Howbeit for my part I think otherwise, & do much rather affirm that these storms (in my judgement) are thus raised, namely by the thickening and breaking of the aire; which the snortling, rushing, and howling of these beasts, assembled in an innumerable companie, causeth. For it is certain that sounds will break and alter the aire (as I have heard it of a citie, freed from the plague by the thundering noise of cannons) & also I suppose that the violent rushing of these beasts causeth much water to flie up and thicken the aire, and by their howling and snortling under the waters, they do blow up and as it were attenuate the waves, and make them arise in a thinner substance then at other times; so that nature having all these helps, in an instant worketh to the amazement of the mariners, and often to the danger of their lives.

Besides, shall we think that spirits use to feed, and will be so foolish as go and hang themselves on an hook for a bait? They may have occult qualities (as the Loadstone hath) to work strange feats, and yet be neither spirits nor devils:

devils: for experience likewise teacheth, that they die either sooner or later after their taking; neither can a spirit have flesh and bones as they have. But to conclude, *Alexander ab Alexandro*, in the third book of his geniall dayes, hath written one whole chapter (*viz.* the 8) concerning these sea-men, affirming that it is no fabulous report to say there be such: he describeth them to be fish in their lower parts, and like to men in their upper parts; affirming moreover that they be very venereous and desirous of women, loving them, or lusting after them. Whereupon he relates a storie of a certain woman who was taken up and carried to the sea by one of these Mermen, *concubitûs causâ*, that he might couple himself with her. Which monster the inhabitants took soon after; but refusing meat, he died: and they then made this law, that no woman should adventure to come near the sea, except her husband were with her. This happened in *Epirus*, a countrey of Greece.

Another Hog-fish.

In the kingdome of *Congo*, which lieth in the African part of the world, there is in the river *Zaire*, another kind of hog-fish differing from that already mentioned. It is called *Ambize*, *Angulo*, or *Hog-fish*. It hath as it were two hands, and a tail like a target, which eateth like pork, and whereof they make lard, and hath not the savour or taste of fish. It feedeth on the grasse that groweth on the banks of the river, and never goeth out: it hath a mouth like the mozell of an ox; and there be of them that weigh five hundred pound apiece. *Purchas.*

The Pontarof.

In the West sea there is a fish called the *Pontarof*, a cruell monster, that taketh great pleasure to carrie away young children, loving to play and sport with them. *Du Bart. Summar. ex Oviedo, lib.* 13.

The Shark.

The fishes called *Sharks* are most ravenous devourers, and in the waters upon the coasts of Africa, they have been seen with six or seven other smaller fishes, guarded

with blew and green, attending like serving-men.

The Dolphin.

And omitting many, whether in the new-found world, in the Norway seas, or elsewhere, I come now to the *Dolphin*, that king of fishes; then whom there is not any which is swifter, none more charitable to his fellows, and (which is above all the rest) none more loving to man. *Plinie* hath written much of this fish, in his ninth book, at the eighth chapter; and so have others also: affirming that he is not onely sociable and desirous of mans company, but delighted also in sweet and sense-charming musick.

Du Bart.

Amongst the fishes that did swiftly throng
To dance the measures of his mournfull song,
There was a Dolphin did the best afford
His nimble motions to the trembling chord.

What may be thought of *Arions* storie.

But whether that in the storie of *Arion* be true, I am not able to say. Perhaps their censure is none of the worst, who perswade themselves it is a fable which was invented by those who had heard of that famous historie of the Prophet Jonas: for divers stories of the Bible have been in this manner changed by the Pagans; as amongst the rest, that of Senacherib was very counterfeitly told by *Herodotus*, when he makes mention of a great companie of mice (as he had his relation from the priests of Egypt) who came by night and eat off the feathers from his arrows, *Herod. lib.* 2. And the floud of *Deucalion* is related by *Ovid*, as if Noahs floud and that were all one. And the Grecians fable, upon the sunnes going back in Hezechiahs time, that at the* birth of *Hercules* the sunne made a longer night then at other times.

* *Lucian.*

The Dolphin is loving and kind.

Howbeit this scruple may not take away the love of the Dolphin towards man. For besides those things related in *Plinie*, of a boy feeding a Dolphin, and carried on his back over the waters to school, with such like things in the said Authour; others also have in a manner written

to

to the same purpose. And amongst the rest, *Ælian* tells a storie of a Dolphin and a boy: this boy being very fair, used with his companions to play by the sea side, and to wash with them in the water, practising likewise to swimme: which being perceived by a Dolphin frequenting that coast, the Dolphin fell into a great liking with this boy above the rest, and used very familiarly to swimme by him side by side: the boy at the first was fearfull of this his unwonted companion; but through custome he and the Dolphin grew so familiar, that they would be friendly antagonists, and contend together in swimming each by other: insomuch that sometimes the boy would get upon the Dolphins back, and ride through the waterie territories of Neptunes kingdome, as upon some proud pransing horse, and the Dolphin at all times would bring him safely to the shore again; of which the people in the adjoyning citie were eye-witnesses, and that not seldome. At last it chanced that the boy, not carefull how he sat upon the fishes back, but unadvisedly laying his belly too close, was by the sharp pricks growing there, wounded to death. And now the Dolphin perceiving by the weight of his bodie, and by the bloud which stained the waters, that the boy was dead, speedily swimmeth with all his force to the land, and there laying him down, for very sorrow died by him. In memorie whereof, let these few lines be added,

A storie to the same purpose.

The fish would live, but that the boy must die:
The dying boy the living fish torments.
The fish tormented hath no time to crie;
But with his grief his life he sadly vents.
Oh where is love or grief so firm as this?
Of such true love and grief most men do misse.

The *Sea-fox* is a fish that hath a long tail & is subtil in his chase, having a strong sent as the Land-fox hath. He useth to swallow his young into his belly in time of danger

The Sea-fox.

ger (as the *Balæna* doth) which some also attribute to the Dolphin. This fish and the *Amia* use to deceive the fisherman, either by leaping at, or by sucking up so much of his line, that they may be sure to bite off the hook. *Ælian. var. hist. lib.* 1.

The chaste Cantharus.

The *Cantharus* is an admired pattern of chastitie. *Ælian* * speaketh of the ardent love of this *Cantharus*, and saith that between him and the adulterous *Sargon*, is great enmitie: for he will fight as courageously for his mate, as *Paris* could fight for *Helena*; being in this the true embleme of a loyall couple, who hate defiled sheets, loving and living constantly together.

* *Hist. animal. lib.* 1. *cap.* 26.

The Mullet.

Like unto which is the *Mullet*; who albeit she be a scarfull fish (as *Plinie* telleth us, *lib.* 9. *cap.* 17.) and will hide her head for fear; yet seeing her male taken, she followeth after him as farre as she can, choosing rather to die with him, then to be left her self alone.

The Sargon.

But the *Sargon* is contrarie; for this is an adulterous fish, daily changing mates; and not so content, useth to go on the grassie shore, horning the he-goats who had horns before. For (as * *Ælian* writeth) his lustfull love towards the she-goat is so furious, that the fishermen use to take these fishes by covering themselves with a goats skinne.

* *Hist. animal. lib.* 1. *cap.* 23.

An embleme against adulterie.

And doth not this fish bear a true embleme against adulterers? Yes surely doth it. For those who make horns on other mens heads, do but make engines to tosse themselves to hell.

Alciat. Emb.

Capra refert scortum, similis fit Sargus amanti.
Qui miser obscœno captus amore perit.
The goat, a harlot doth resemble well;
The Sargus like unto the lover is,
Who (poore wretch!) taken, is condemn'd to hell,
And for his lust depriv'd of heav'nly blisse.

Howbeit,

Hovvbeit, a Ten in the hundred, or a Fox-farr'd-cloutred-pated fornicatour, vvho to his tenants vvife is sometimes a lecherous administratour, cannot see it; neither vvill such believe that vvhores are the hackneys vvhich men ride upon into Devils-ditch: for thither do they gallop, like the deceived *Sargus*, caught by the fisher in the skinne of a goat.

Hoga is said to be a fish as big as a mackerell, or (as some say) no bigger then a herring. This fish hath vvings, vvhich do not so much help her by flying to escape a farre greater fish, as endanger her to the merciless crueltie of another enemie; I mean a certain seafovvl, which vvaits but for such an oportunitie to devour her. Neither can it flie high or farre, or longer then her moistened vvings keep vvet; nor yet svvimme fast, having exchanged finnes for vvings. So (saith one) have I seen men thrive vvorse that have tvvo trades, then such as have been skillfull or thriftie in one.

A fish with wings.

It affords a fit embleme concerning thriving.

The birds that vvatch for these fishes, are in feathers as big as crovvs, but in flesh little bigger then a sparrow, and are wiser to hunt after others then to save themselves; for they be so tame that they vvill light upon the hatches of ships, and suffer themselves to be taken. So have I seen some so eager to hurt others, that in the mean time they have runne themselves into as great a danger: and vvell vvorthy are they of such a revvard. For if a treacherous Haman provide a gallovvs for an harmlesse Mordecai, it is no pitie to see the preparer give it hansell, or first hanged. Neither vvill any one mourn to see an Achitophels craftinesse catch himself in his ovvn vvilinesse.

Harm watch, harm catch.

He that will others guide to Charybs shelf,
On Scylla's rock may fearlesse split himself.

The *Remora* is a small fish vvhich cleaveth to the bottome of a ship, and doth as strongly as strangely stay it, called

The Remora.

called therefore by some the *Stop-ship*. Of which there can be no more reason given, then of the loadstones drawing iron: neither is it possible to shew the cause of all secrets in nature.

The Torpedo.

The properties of the *Cramp-fish* are in a manner as strange. For the nature of it is to make the hands of such as touch it benummed, albeit they touch it with a long pole. *Plin.lib.32.cap.* 1. He is called in Latine *Torpedo*, which is a name proceeding from his benumming qualitie. Some attribute the propertie of this secret to the aire which issueth from the bodie of the *Torpedo*; supposing it to be so subtill, that passing along by the line and the pole, it affecteth and afflicteth the arms of the fisherman. Many Authours have written of this fish, as *Plutarch*, *Plinie*, *Ælian*, *Aristotle*, and sundrie others. It is said to be of the form and greatnesse of a Thornback, and (as I said) of a fell and a banefull breath; wherewith she doth not onely benumme the fishers hand, but also the neighbouring fishes who come near her, that so being as if they were dead, she may the more easily prey upon them; like many a rich man, slain by his heir, in hope to possesse his lands.

The Barbe.

The *Barble* is a fish that will not meddle with the bait, untill with her tail she have unhooked it from the hook. This fish carries a warie jealousie alwayes with it, and will not be deceived by all the baits the fisher can devise. *Plutarch*, in his book *De industria animalium*, setteth down the carefull circumspection of this creature; affirming moreover that if with the beating of her tail she can do no good, she then opening her mouth a little, doth onely touch the bait with the tip of her lips, and gnaw it round about. Which is indeed a fit embleme against the rashnesse of those who will not look before they leap, but are so fool-hardie that without either fear or wit they will undertake strange projects, and

Against rashnesse.

and believe every fair word; as if the grasse had no snakes, or a sugred pill no inward bitternesse.

The Scolopendra.

The *Scolopendra* is a fish more credulous, but of as strange a propertie; For, as *Plinie* writeth in his ninth book and 43 chapter (to which * *Ælian* is not opposite) this is a fish which refuseth not the bait, but feeling himself taken with the hook casteth out his bowels, and then having loosed the hook swalloweth them again.

*De animal. lib. 13. cap. 23.

An embleme from this fish, of swallowing the baits of sinne.

Now this is a fit embleme of all such as have swallowed down the deceitfull baits of sinne; aptly affording this instruction, that if they will be safe and secure, they must *search themselves*. For if those baits which we have swallowed, through the seeming good of deceitfull sinne, if they, I say, be not vomited up again, there is a hook which will hold us fast, and hale us headlong into miserie.

The Sturgeon.

An embleme concerning thriving.

The *Sturgeon* is a fish whose scales turn backwards, and therefore he swimmeth against the stream. So have I seen some effect their projects by means and wayes, contrarie to the common course of men. Nay, some have been so happie as to thrive in respect of themselves, when others could not but judge that the world must needs go backwards with them.

The Calamarie.

The *Calamarie* is sometimes called the *Sea-clerk*, having as it were a knife and a pen. Some call him the *Ink-horn-fish*, because he hath a black skinne like ink, which serveth him in stead of bloud. And of these fishes there be more kinds then one: for the *Cuttle* hath also an inkie juice in stead of bloud. You may see three figures of this fish in the fourth book of *Gesners* historie of fishes; and * *Plinie*, speaking of these fishes, affirmeth that both male and female, when they find themselves so farre forth discovered, that if they cannot be hid they must be taken, do then cast this their ink into the water;

*Lib. 9. cap. 29.

ter; and so by colouring it, they obscure and darken it: and the water being darkened, they escape.

For through the clouds of this black inkie night,
They dazling passe the greedie fishers sight.

The purple. The *Purple* is a kind of shell-fish, from whence is gathered a most necessary juice for the dying of silks and such like things. This juice is in the middest of her mouth and jaws, and is to be had in the spring time; for at other times she is barren and wants it. She loseth her life with the losse of this juice, and liveth no longer then this abideth in her: Wherefore *Munster* in his cosmography giveth this counsell, to take them alive; adding moreover that she is a great devourer of little shell-fish. She hath (saith he) a long tongue which is alwayes moving; and by this she getteth her prey. Some say that they differ in colour according to their nearnesse or farnesse from the sunne: whereupon it comes to passe that in Africa they have as it were a violet colour, and at Tyrus a redder colour.

The Polypus. *Polypus* is a fish with many feet and a round head near unto them; it is a great enemy to the Lobster: and (as *Ælian*, and other Authours write) they can often change their colour, and by that project devoure other fishes. Their use and custome is to lie lurking closely by the sides and roots of rocks, changing themselves into the colour of the same thing unto which they cleave: insomuch that they seem as a part of the rock: whither when the foolish fish swim, they fall into danger: for whilest they dread nothing, these *Polypodes* suddenly prey upon them and devoure them. And indeed this is the constancie and unfeared treacherie, which is often found in many men, who will be any thing for their ovvn ends, and nothing vvithout them; sparing none for their ovvn purposes nor loving any but to effect them. Their heads indeed may vvell be near their feet: for they prize the trash

Treacherous persons like to the Polypus.

trash we trample on, farre above the joyes of heaven; else would they never work their fond purposes by deceitfull means, and damage others to help themselves.

The pearl-fish.

Amongst the severall sorts of shell-fishes, the glistering *Pearl-fish* deserves remembrance; not onely in respect of her self, but also in regard of the *Prawn*, another fish and her companion: for between these two there is a most firm league of friendship, much kindnesse, and such familiaritie as cannot but breed admiration in the reader. They have a subtill kind of hunting, which being ended, they divide their prey in loving manner: for seeing they one help the other in the getting of it, they likewise joyn in the equall sharing. And in few words, thus it is: (of which ye may reade in *Plinie*, *Plutarch*, *Ælian*, &c.) When the *Pearl-fish* gapeth wide, she hath a curious glistering within her shell, by which she allureth the small fry to come swimming into her: which when her companion the *Prawn* perceiveth, he gives her a secret touch with one of his prickles; whereupon she shuts her gaping shell and so inclloseth her wished prey: then (as I said) they equally share them out and feed themselves. And thus day by day they get their livings, like a combined knot of cheaters, who have no other trade then the cunning deceit of quaint consenage; hooking in the simpler sort with such subtill tricks, that be their purses stuft with either more or lesse, they know a way to sound the bottome, and send them lighter home; lighter in purse, though heavier in heart.

The Pearl and the Prawn emblemes of cheating.

The Gilt-head.

The foresaid Authours make mention of the *Gilt-head* or *Golden-eye*, which helpeth the one the other out of a snare, or from off an hook: for if the insnared fish cannot help himself by loosing the snare with his tail, then will his companion put to his mouth, and set him free. Or if the one see the other hanged on a hook, it may

may be easily observed how his free mate will skip at the line, and never leave till he have broke it off. Which may serve well to teach us, that we ought not to leave our friends in danger, but do the best and utmost that we can to set them free. For a friend is never known till such an occasion shall discover him: at other times we have friends enow.

An embleme of friendship.

The Plaice

The *Plaice*, if it be well grown, and something thick, is said to be a passing good fish: It takes the name from *Placeo, to please*, because it pleaseth the palate.

The Sole & Whiting

That fish which we call the *Sole* is a very wholesome fish: And so is the *Whiting*, often entertained in the court.

Gurnard.

I have heard the *Gurnard* likewise much commended.

Conger.

But the *Conger* is hard of substance, and therefore not easie to be digested.

Salmon.

And so also is the *Salmon* hard of digestion, although it be a pleasant fish, and very sweet, especially the belly. Whereupon it comes to passe that we do not eat it hot, or presently after it is boyled.

Thornback.

The *Ray* or *Thornback* is scarce so wholesome as other fish; for Physicians write that it makes men subject to the falling evil, by reason that it is a fish full of superfluous juice. Howbeit the pricks which grow without upon the skinne, if they be pulled up by the roots, dried, made into powder, and given fasting in White or Rhenish wine, is an excellent medicine to avoid gravell and to break the stone.

A medicine against the stone.

Herring.

Herring is a fish common and cheap, very dangerous if they be not moderately eaten fresh; for we often see that want of care in the eating of them, casteth many into fevers. And as for Red Herrings and Red Sprats, they must needs have little wholesomenesse or nourishment in them: for, if we may believe the learned, they

they give as good nourishment to the bodie, as rustie Bacon.

We reade that in the river *Ganges* are *Eeles* of an extraordinarie bignesse and length. This fish is never better moved from his nest then in a thunder. They be not bred out of spawn as other fishes, but from the slime and dirt of the earth, as the common opinion goeth: and of all fishes which are toothsome, these are the least wholesome. They breed agues, stop and hurt the voice, procure the stone by reason of their great slimenesse, and do also dispose a man to the gowt by breeding such matter as brings pain in the joynts. But know that after *Eeles* and *Lampreys*, we should drink good strong wine; and indeed generally with all kinds of fish, wine is very wholesome. *Eeles.*

The *Shad* is never in season but in the spring; for at other times it is full of bones. *The Shad.*

And in the choice of fish this is a rule, that such as have scales and finnes are best: for many scales and finnes betoken the purenesse of their substance, as the physicians tell us.

The *Gogion* is a daintie fish, and found aswell in the sea as in fresh waters; of which there be sundry sorts: but the best live in sandie places, and about rocks. *The Gogion or Gudgion.*

The *Tench* is commonly called the Physician of other fishes: for when they be hurt, they heal themselves again by touching the *Tench*, finding the slime of his body to be as a soveraigne salve. *The Tench*

The *Perch* useth to wound others with his sharp fins, whereupon the *Pike* or *Pickerell* dares not devoure him. Both these give the body pure nourishment, by reason of their firm and hard substance. *The Perch and Pike.*

Tht *Roch*, *Dace*, *Chevine*, *Bream*, *Smelt*, and *Carp*, are good. But the *Trout* is admirable: for this is so sound in nourishment, that when we would speak of one who is sound indeed, we say that he is as sound as a *Trout*. This is *The Trout*

is in some kind a foolish fish, and an embleme of one who loves to be flattered: for when he is once in his hold you may take him with your hands by tickling, rubbing, or clawing him under the bellie.

I will not say who else is like this fish, for fear I should offend some squeamish dame: but let not her anger shew her wantonnesse; and so we are both charmed to hold our peace: she, to salve her own credit; and I, to end this present section: wherein I do confesse I might have spoken of sundry other fishes, but I had rather send my reader to *Gesner* and such other ample Authours, then tire him with my relations.

Sect. 2.

Containing the second part of this fifth day; which is of Birds, or Fowl, flying in the open firmament of heaven.

FRom fishes I must come to birds, from the water to the aire, and teach my pen to flie a while with the feathered fowls, as before it was swimming with the fearfull silent fish.

And now why God hath joyned the creation of fish and fowl together, may without curiositie be observed; to wit, because he vvould in every work and part thereof continue an harmonious order. Great is the likenesse between fish and fowl, whether it be that we consider the naturall place wherein either of them live, or that we consider their resemblance in parts, or their manner of motion. For first, the place of fishes is the water; the place of fowls the aire: both which are diaphanous, clear, moist, and easie yielding elements. Secondly, that which finnes be to fishes, wings and feathers are to birds. And thirdly, that which swimming is to fishes in

in the waters, flying is to birds in the aire. The one moves himself by his finnes, the other by his wings. The one cuts and glideth through the liquid aire, the other shoots and darteth through the humid water. The one makes paths in that subtil concave between heaven and earth, the other draws furrows in the ploughed sea: and both tracts are indiscernible; either place again closing & no longer open then their native dwellers flit through their yielding gates.

And first of all methinks I see the lofte *Eagle*, king of birds, towring on high in the heaven-aspiring aire. *The Eagle*

And amongst all fowls, the Eagle onely can move her self straight upward and downward, perpendicularly, without any collaterall declining. *Munster.* This bird is commended for her faithfulnesse towards other birds in some kind, though sometimes she shew her self cruell. They all stand in awe of her: and when she hath gotten meat she useth to communicate it unto such fowls as do accompany with her; onely this some affirm, that when she hath no more to make distribution of, then she will attach some of her guests, and for lack of food, dismember them. Her sight is sharp and quick, insomuch that being in the highest part of the aire, she can easily see what falleth on the land, and thereupon the sooner find her prey. It is said that she can gaze upon the sunne and not be blind, and will fight eagerly against the Dragon: for the Dragon greedily coveting the Eagles egges, causeth many conflicts to be between them.

The Poets have called her Joves bird, and Jupiters armour-bearer, because she is never hurt with lightning. She is a bird tenderly affected towards her young, insomuch that she will endanger her own bodie to secure them, bearing her young ones on her back, when she perceiveth them to be assaulted with arrows. Hares, Hares Geese and Cranes, are such creatures as this bird useth

useth to prey upon. And for her practise in killing the Hart, thus it is: when she laboureth to drive the Hart headlong to ruine, she gathereth (saith *Munster*) much dust as she flieth, and sitting upon the Harts horns, shaketh it into his eyes, and with her wings beateth him about the mouth, untill at last the poore Hart is glad to fall fainting to the ground.

The Eagle buildeth her nest in the rocks and high places; and the propertie of the young Eagle is, when she findeth a dead carcase, first of all to pick out the eye. And so (saith one) do all seducing hereticks, first put out the right eye of knowledge, that thereby they may the better leade along their seduced Proselites.

And note that although the Eagle be very tender over her young, yet when they be able to flie of themselves, she casteth them out of her nest; because she would have them shift and no longer depend upon their damme. Which is a good example, saith the same Author, for domesticall discipline; namely, that parents should not bring up their children in idlenesse, but even from their youth exercise them in honest labour, training them up to some vocation.

Parents ought not to bring up their children in idlenesse; by an example taken from the Eagle.

Moreover, *Aristotle* writeth, that when the Eagle waxeth old, the upper part of her bill so groweth over and increaseth, that in the end she dieth of famine. But *Augustine* observeth further that when the Eagle is thus overgrown, she beateth her bill upon a rock, and so by striking off her cumbersome part, she recovereth her strength and eating; to which the Psalmist alludeth, Psal. 103. 5. *Which maketh thee young and lustie as an Eagle.*

The Phenix.

The *Phenix*, saith *Munster*, is a noble bird, and is but one in the world. *Cornelius Valerius* (whom * *Plinie* mentioneth) doth witnesse that when *Quintus Plautius* and *Sex. Papinius* were Consuls, one was seen to flie into

* *Lib.* 10. *cap.* 2.

into Egypt. And *Tacitus* also writeth, that when *Lucius Vitellius* and *Paulus Fabius* were Consuls, another was likewise seen to flie thither: and yet not another, but the same rather; for there was not above two years difference in the time of this appearance; *Vitellius* and *Fabius* being Consuls in the yeare of the citie 786, and *Plautius* with *Papinius* in the yeare 788. * *Dion* was perswaded that this bird thus shewing her self, did betoken the death of *Tiberius*: but our countreymen * Mr *Lydiat* rather thinketh, that it pointed out the time when Christ, that true Phenix, did both die and rise again: and so also thinketh *Carion*, in his Chron. *lib.* 3.

*Annal. l. 6.

*Lib. 58.

* Lib. de emend. temp. & alia quædam lib. cap. 22.

This bird (if we may believe what is written) is about the bignesse of an Eagle, having a glittering brightnesse in the feathers of her neck, like unto gold; in other parts purple, with an azured tail, but so as in some places it is of a rose colour: her head hath on it a plume or tuft of feathers. Some say she liveth five hundred yeares; others give her six hundred and sixtie: and, as *Plinie* writeth, this bird hath her settled habitation in *Arabia Felix*. When she waxeth old, she is said to make her a nest of Cassia, with branches of the frankincense tree, into which she putteth other odours, and so dieth upon them: and then, out of her bones and marrow, there springeth first a little worm, which afterward comes to be a young Phenix.

Howbeit many think that all this is fabulous: for (besides the differing reports vvhich go of this bird) vvhat *species* or kind of any creature can be rehearsed, vvhereof there is never but one? and vvhereas the Lord said to all his creatures, *Increase and multiplie*, this benediction should take no place in the Phenix vvhich multiplieth not. And again, seeing all creatures vvhich came into the Ark, came by tvvo and tvvo, the male and female, it must needs follovv that the Phenix by this means

perished. And so saith one, *As for the Phenix, I (and not I alone) think it a fable, because it agreeth neither to reason nor likelihood, but plainly disagreeth to the historie of the creation and of Noahs floud, in both which God made all male and female, and commanded them to increase and multiplie.*

The Griffon.

The *Griffon* is a creature (if there be any such, for many doubt it) which whether I may reckon amongst the birds or beasts, I cannot tell. Howbeit as I find him marked by * *Ælianus*, he is thus described; namely that he is a kind of beast with foure feet, keeping most of all in *India*, being as mightie in strength as a lion: he hath wings and crooked talons, black on the back, and in the forepart purple. His wings be somewhat white, his bill and mouth like an eagles bill, his eyes fierie; he is hard to be taken except he be young, he maketh his nest in the high mountains, and fighteth with every kind of beast, saving the lion and elephant: he diggeth up gold in desert places, and giveth repulse to those that come near him. But (as I said) some doubt whether there be any such creature or no: which, for my part, shall be left to every mans libertie.

* See also *Munst.* Cosmog.

The Ostrich.

The *Ostrich* is compounded as it were of a bird and a beast, and is especially found in *Africa*: he is partly like a camell in his long legs and feet, partly like a sparrow in his head and bill, though much greater. Some say his head is covered with small hairs, his eyes be grosse and black, his neck is long, and (as I said) his bill is short and sharp like a sparrows bill, and his feet hath as it were a bipartite hoof. He is said to exceed the height of a man on horseback: and as for his wings they help him little: howbeit we make much use of his feathers, as is well known. And in one thing he is like the woodcock; for hideing his head he never fears his bodie.

Job

Job speaketh that he is forgetfull; for when this bird hath laid her egges (which she hides in the sand, and are hatched by the sunne) she forgetteth them, untill the young come forth, and then the males are forced to feed and cherish them. So have I seen many mothers refusing to nurse their children; and, if they could, would have others likewise bear them: but putting them forth, I believe many perish for want of care and due attendance: for it is not possible that a nurse should have that tender affection which belongs to a mother; and many times, with the nurses milk, the children suck the nurses vices. Necessitie therefore, and a prudent choice, should seek out nurses; as we see it Gen. 21. 7. Moreover it is said, that this bird is of such strong digestion that she will eat iron: and when she seeth that she cannot avoid taking, she casteth stones with her claws against her followers, by which she often hurteth them.

Job. 39. 14, 15.

The Ostrich like women who will not nurse their children.

Ibis is a tall strong bird, having a bill of great length; he doth exceeding much good in destroying serpents. These birds live in *Egypt*, and the serpents brought out of *Lybia* thither, by the Southern wind, are killed by them, *Plin. lib.* 10. *cap.* 28. See also afterwards in the *Stork*.

Ibis.

The *Kite* is well known: she is a fowl which flieth softly untill she espie her prey; she hath quick eyes, will flie high into the aire in hot clear weather, and by the turning of her tail she directs her bodie, even as a great lazie ship is ordered by the helm. *Aristotle* observes that all such fowls as have talons, cannot devoure any meat but flesh: & if any other food be thrust into their mouthes they cannot eat it.

The Kite.

There is great enmitie between the kite and the raven, it being an usuall thing for the kite to robbe the raven, as being better in talons and flying. So have I seen the gripers and catchpoles of this world destroy one another,

Emblemes from the Kite, concerning the covetous gripers of this world.

Envie shadowed forth.

another, the lesse mightie alwayes devoured by the stronger and more potent. And (me thinks) the kites feeding upon carrion, is a fit embleme of the envious person, who rejoyceth in the fall of others: for there be many in the world who care not what men fall, so they may rise; building their own houses out of the bloud and ruine of others.

Howbeit, it is observed by *Aristotle*, that the kite being a ravenous bird, bringeth forth but two young ones at a time; wherein nature hath been very provident and carefull, to suffer such ravenous fowls to increase no faster. And so (saith one) it is commonly seen in the world, that many rich cormorants (or corn-vorants rather) are either childlesse and have no children, or else they abound not in many; and yet we can see no end of their scraping, pinching, and oppressing. *There is one alone* (saith Solomon) *& there is not a second, which hath neither sonne nor brother, & yet there is no end of all his travell*, Eccles. 4. 8.

The Raven

The *Raven* also is a fowl given to rapacitie and devouring of flesh, great of bodie, slow in flight, sharp in sight, frequenting much the countreys of *Italie*, *Spain*, *Egypt*, and about the Alps. But this (saith *Munster*) is to be understood of the great kind of ravens.

This fowl doth greatly above all others covet mens carcases, and (as some think) by a singular instinct and naturall gift, it hath understanding of mans death, presaging it a few dayes before. But whether that be true or not, this is certain, that it haunteth places of battell, with solitarie ruines; and like to the young eagles, it picketh out the eye of a dead corps first of all, because (as some suppose) he seeth his own image in the clearnesse of the eye; and so like covereth the like. The fox and this bird are very friendly, but both at enmitie with the hawk; that being the chiefest cause of their familiaritie.

An emblem from the Fox and Raven, concerning companions in ill, &c.

ritie. And so have I seen one man love another the better, for hating him whom he abhorreth: or one, like the fox, will sometimes plot anothers ruine, that the other, like the raven, may prey upon him.

Munster telleth us that the skinne of a raven well tewed and dressed with the feathers on it, is exceeding good to be laid to a weak and sickly stomach; for it greatly helps digestion.

Good to help digestion.

And again, she is noted for an unkind bird to her young ones, * expelling them out of their nest before their full and compleat time, leaving them to their selves before they are able to shift; and so crying for food, God by his providence provideth for them: whereupon it is said, that *the young ravens crie unto God*: or, *which feedeth the young ravens that call upon him*, Psal. 147. 9. And in this act, these and the like birds are emblemes of such as want naturall affection. And indeed the young ones afterwards prove as cruell to their dammes: for when they be old, and have their bills overgrown, they die of famine, not sharpning their bills again, by beating them on a stone, as the eagle doth: * neither will their young ones help them, but rather sometimes set upon them, when they are not able to resist. It is not good therefore to use children too harshly in their minoritie, lest when *Senes* come to be *Pueri* again, they find as little favour at their hands as they shewed before. And of this, parents, masters, tutours, and guardians should be carefull; learning their lesson from these unnaturall birds. But more I may spare to adde; for the well affected are also well instructed to put a difference between foolish cockering, and cruell handling: knowing with * Solomon that *Where the rod is spared, the child is spoiled*: and with Paul confessing likewise, that they ought not to be bitter to them, *lest thereby they provoke them to wrath*, Ephes. 6. 4. Moreover let it

* *Plin. lib. 10. cap. 12.*

Against such as want naturall affection.

* *Ælian. de animal. lib. 3 cap. 43.*

Children should not be used too harshly in their minoritie.

* Prov. 13 24. and chap. 23. 13.

it be obſerved that ſome Authours affirm there is alſo the raven of the ſea, which is like in proportion to the other raven, onely differing in colour, as being white:. Now *Ariſtotle* thinketh that this happeneth by reaſon of ſome paſſion or accident in the generation. Neither (as is thought) doth the raven conceive by conjunction of male and female, but rather by a kind of billing at the mouth, which.* *Plinie* mentioneth as an opinion of the common people; ſaying, *Ore eos parere aut coire vulgus arbitratur: ideóque gravidas, ſi ederint corvinum ovum, per os partum reddere;* which is very ſtrange, if it ſhould be true: and therefore *Ariſtotle* denieth it; onely thinking that their billing or kiſſing is but like unto that amongſt the doves. And as for the Engliſh name *Raven*, given to this bird, it is ſo called of *ravening* and *devouring*: In Greek it is κόραξ, of κρώζειν, which ſignifieth *Crocitare, to croke*; and in Latine, *Corvus*; under which name we comprehend the crows as well as the ravens.

* *Lib.* 10. *cap.* 12.

The egges of ravens are naught for big-belled women.

The ancient Emperours of Rome, and other heathen Princes, had their Soothſayers, and beholders of birds: now theſe gave great heed to the ravens, and would diligently look upon their eyes; marking, in time of warre, to what part they turned: for they ſuppoſed that the raven did preſage which ſide ſhould periſh in battell; and would alwayes therefore have her eye fixed or turned that way, or to that partie; as it were ſhewing her longing deſire to be feeding on their carcaſes. Which is ſomewhat confirmed by that which *Plinie* writeth of the ravens flying out of *Athens* and *Peloponneſus*; ſaying, *Nam cùm Mediæ hoſpites occiſi ſunt, omnes è Peloponneſo & Attica regione volaverunt. Plin. ibid.* Which flocking to the fight was for their fat prey, as though there had been in them ſome ſenſe of the preſent action.

Furthermore, this I find again recorded by *Plin. lib.* 10. *cap.* 43. that when *Marcus Servilius* and *C. Ceſtius* were

were Consuls, there was a solemne funerall of a raven celebrated at Rome, upon the fifth calends of April: and this being so near the time of our Saviours passion as it was, did (as some observe) not unfitly shadowforth the devils funerall, and destruction of his kingdome among the Gentiles. For as the raven delighteth in solitarie or desert mansions, Isai. 34. 11. so doth the devil walk through desert places, as we see it, Matth. 12. 43. In which resemblance, he is fitly called the devils bird: and this funerall may as well prove the time of Christs death and burial, as *Dions* Phenix, appearing about the same time, was used by *Carion*, and Mr *Lydiat*, to shew the yeare of his resurrection.

The *Pelican* is that bird which* *Plinie* calleth *Onocratalus*, and is much like the swanne in shape and proportion, excepting in the widenesse of his gullet and capacitie of his maw. Of this fowl there be two sorts; one that liveth by the waters, another which is the Pelican of the desert.

The Pelican.

*Lib. 10. cap. 47.

This is a melancholy bird, and takes the name of *Pelican*, from the Greek* πελεκᾶν, so called of *smiting* or *piercing*: which is in regard that by piercing his breast he reviveth his young ones with his own bloud, when they are bitten and killed of serpents: or having killed them with his bill, he reviveth them again by his bloud after three dayes. Or else this name belongs unto him from piercing the shelfishes and picking out their meat to feed his young. For, according to the testimonie of *Aristotle*, the dammes use to catch such fish and swallow them into their stomachs, and when they have there so warmed them that their shells may gape, they do again cast them up; and so pick out their meat in an easie manner. In like sort have I seen those who have done more by policie, then others or they could do by strength; neither is violence alwayes the readiest way: for sometimes

*Πελεκᾶν, comes from πελεκάω, *perforo, to beat or pierce*

Policie is better then strength.

ſometimes art may be more then arms, and gentle uſage have povver to charm, vvhen rigour helpeth to enrage.

The Stork.

The *Stork* is a famous bird for naturall love to his parents, vvhom he feedeth being old and feeble, as they fed him being young: the Egyptians and the Theſſalians ſo eſteemed this bird, that there vvas a great penaltie laid upon any that ſhould kill him. His Engliſh name *Stork* comes from ςοργὴ in Greek, vvhich is *Amor* in Latine; proceeding from his forenamed kindneſſe and naturall love to his damme; being alſo humane and loving to mankind, delighting to build in the tops of houſes and chimneys, as is uſuall to be ſeen in Germany; vvhereby it is evident, that he loveth the ſocietie of man: vvhich (ſaith one) ſhevveth their diſpoſition to be unnaturall, vvhich do ſhun the companie of men, and of a ſuperſtitious mind, retire themſelves into deſert and ſolitarie places, as Hermites, Anchorites, and ſuch like. Dr *Wil.* on Levit.

Plin. lib. 10. cap. 23.

There ought to be ſocietie amongſt men.

And novv the reaſon vvhy he vvas in ſuch eſteem in Egypt and Theſſalie, vvas for his great ſervice he did them in killing of ſerpents, and other venemous things. *Plinie* calls him *Ciconia*: and from the Stork Ibis, men firſt learned to purge by clyſter; for vvith his bill he conveyeth ſalt vvater up into his bodie belovv, and ſo purgeth himſelf.

From whence men firſt learned to purge by clyſter.

The Heron.

The *Heron* or *Hernſew* is a fovvl that liveth about vvaters, and yet ſhe doth ſo abhorre rain and tempeſts, that ſhe ſeeketh to avoid them by flying on high. She hath her neſt in very loftie trees, & ſhevveth as it vvere a naturall hatred againſt the goſſehavvk and other kind of havvks: and ſo likevviſe doth the havvk ſeek her deſtruction continually. When they fight above in the aire, they labour both eſpecially for this one thing, that the one might aſcend and be above the other: Novv if the havvk getteth the upper place, he overthrovveth and vanquiſh-

vanquisheth the heron with a marvellous earnest flight; but if the heron get above the hawk, then with his dung he defileth the hawk and so destroyeth him: for his dung is a poyson to the hawk, rotting and putrifying his feathers.

This bird is *Avis furibunda, a furious bird*; and so in Latine she is called *Ardea*, of *ardeo, to burn*: chiefly because she is an angrie creature, or because she is greatly enflamed with lust; or else because the dung of this bird doth as it were burn or consume what it toucheth.

Of *Hawks* there be many and severall kinds; as the *Falcon, Merlin, Lannar, Tassell*, and sundrie others. Howbeit the *Tassells* are supposed to be the males of such birds as live by prey: as the *Tassell* of the *Saker* is called a *Hobbie*, or *Mongrell hawk*; that of the *Sparrow-hawk*, a *Musket*; that of the *Lannar*, a *Lannaret*; & so of the rest. Now some again distinguish these birds, three severall wayes. First by the form and fashion of their bodie; some being great, as the *Gossehawk*, *Faulcon*, *Gerfaulcon*, &c. some small, as the *Merlin*, *Musket*, *Sparrow-hawk*, *Hobbie*, and such others. Secondly by their game, as some for the phesant, some for the partridge, some for the hernshaw, some for the duck and mallard, some for one thing and some for another. Thirdly they are said to differ in the manner of their following the game; as such know better then my self, who use to keep and manage hawks. *The Hawk.*

And if hither I may bring other birds of prey, I would joyn to these the *Kite*, *Ringtail*, *Buzzard*, *Bittor*, and such like.

Olaus Magnus makes mention of brave generous falcons in the more northern parts of the world, which live upon the spoil of fish, and build their nests upon high mountains: and for all kinds of hawks generally, he accounts *Olaus Mag. lib. 19.*

accounts them the best which are bred thereabouts: adding moreover that an hawk is fearfull of nothing more then a Peacock: and as for little infants, he saith that there is none, either bird or beast kept tame at home, which more desireth to hurt them, then the Apes and biggest Hawks. So have I seen some maintain and cherish those in their own families, perhaps at their own tables, who upon occasion have proved the first to do them mischief; nay, no occasion but fit opportunitie is enough for such: as *Brutus* conspired the death of *Cesar*. Or again, I have seen those delight in that, which hath been the readiest way to their houses ruine.

Emblemes from the Ape and Hawk, concerning treacherie and ruine to a mans house.

The partridge.

The delicate *Partridge* is a bird well known: she bringeth forth young, which like chickens will runne as soon as they can creep out of the shell. They are supposed to live 16 years. They cover the shell of their egges with a soft dust sprinkled over them, and never lodge whereabouts they breed, being very lascivious wanton birds; as *Plinie* tells us, *lib.* 10. *cap.* 38. And as Physicians write, the flesh of this bird is admirably good and wholesome, especially for weak persons: for it comforteth the stomach, makes men lustie, and helps the memorie. Neither do I marvell (saith one) that gentlemen be at such cost to keep hawks, and take such toil to kill Partridges and Phesants: for besides the pastime and pleasure in hawking, the flesh of these birds is very pleasant, and every morsel as good as gold.

Well may we wish that pleasure to succeed,
Which brings to man such treasure in his need.

The Phesant.

The *Phesants* are said to come first of all from about the river *Phasis*, which is a famous river in *Cholcos*; where they were found, and from whence they were brought by the *Argonauts*: * *Plinie* therefore calls them *Phasianæ*; and we, *Phesants*. This is a princely dish: but the *Mallard* is nothing wholesome; according to that of *Schola Salerni*,

*Lib. 10. cap. 48.

The Mallard.

Good

Good sport it is to see a Mallard kill'd,
But with their flesh your flesh should not be fill'd.
The Capon, Hen, and Chicken, Partridge, Quail,
The heathcock wholesome is, the Dove the Rail;
The Phesant, Woodcock, Lark, and Thrush be good,
And all that do not much delight in mud.

Schol. Salern. translated by Sir John Har.

The Nightingale.

But do you not heare sweet *Philomel*? heark how she playes the silent world asleep. This is a bird much addicted to watching; for she sitteth all the night singing upon a bough, with the* sharp end of a thorn against her breast to keep her waking. Her very throat is able to ravish the dullest eare, and so much the more is her musick beyond compare, in that from so small a creature such daintie aires are warbled forth. The Latines call her *Philomela*; that is, a bird *loving to sing*: and what Stoick but would love to heare her, and give her thanks for her daintie dittie? Should man strive to marrie his industrious layes with hers, he could not be so much rapt with his own as with her delicious notes: for sure she seems to have

So many tunes, whose harmonie excells
Our voice, our viols, and all musick else.

* *Ælian. var. hist. lib. 12.*

Du Bart.

The prettie *Lark* chants with a sugred throat, so doth the *Black-bird*, *Linot*, the severall kinds of *Finches*, the mirthfull *Mavis*, *Redbreast*, *Wren*, *Thrush*, and *Starling*.

But all is nothing to the Nightingale,
Breathing so sweetly from a breast so small.

The Lark, Blackbird, Linot, Finch, Mavis Redbreast, Wren, Thrush and Starling.

The Owl.

The *Owl* is another night-bird; her cry is dismall, and she her self rightly styled *The hate and scorn of all the birds beside*. And of Owls there be many kinds.

Bubo.

The great *Owl* in Greek is called βῦας, of βοᾶν *clamo*, or from the dolefull noise which she maketh: and so in Latine it is *Bubo*. This Owl keepeth in desert places, is like in shape to another Owl, hath talons like the Eagle, and is very near as great. He is thought to be an omi-

nous

nous bird, as he was to *Agrippa*, *Jos. Antiq. lib.* 18. 1. which must be understood when he is seen in the day; as again in the Councell of *Constance* one appeared before Pope John the 22. And of all night-birds, those are hed to be the most disinall, *Qui glutiunt vocem velut strangulati*; that is, *which throtle out a kind of croaking voice, like one that is strangled, or ratleth in the throat.*

The Night-raven.

And of this sound is that hoarse bird which is commonly called the *Night-raven*, or *Night-crow*. This also is said to be a kind of owl, and (as Authours witnesse) will take mice like a cat, and many times catch and destroy moles. In Greek, some name him Ἐλεός: and ἐλεάζω is *clamo, to cry* or *make a noise*: but in Latine he is *Nycticorax*, from νὺξ *nox*, & κόραξ *corvus*; which in English is the *Night-crow*, or *Night-raven*. And as for his colour, it is black like other crows. See *Gesner de avibus, lib.* 3.

The Scriech-owl.

Again, there is another kind named the *Scriech-owl*, which the Latines understand by the word *Strix*, and the Greeks by the word σύριον. Some (in old time) have fabled strange things of this bird, namely that it sucked out the bloud of infants lying in their cradles, and with the very eyes of it did effascinate children, or change their favours: whereupon some have used the same word for a witch, a fairie, or hagge.

Noctua.

But perhaps that which is most commonly called the *Scriech-owl*, is comprehended under one of the kinds of the *Noctua*: or else it may be another Scriech-owl. For there be 4 severall *Noctua's*, as *Gesner* writeth. One is of a large bignesse, and hath feathers growing on her head like eares. A second is lesse; white on the throat and breast, speckled on her other parts with a white and muddie colour. A third is also lesse then the former, and spotted with white and ash-colour. And a fourth is also lesse then this, of the same colour, inhabiting most of all among rocks, and such like places. The *Noctua* in Latine,

tine, in the Greek is called γλαῦξ, from the glaring, or colour of her eyes. And as for the Scriech-owl, she is known by nothing better then her crie.

The Howlet.

Also there is *Ulula*; and this is that which we call the *Howlet*, or the *Madge*. All the owls are solitarie birds, some dwelling in deserts, some in churches and in ruinous buildings: and this delighteth to sit sleeping in a tree, using there likewise to build her nest; frequenting barns and other such like places for the love of mice, young birds, and little chickens. She is of a gray colour in the most of her bodie.

To make a drunkard lothe his liquour.

Some say that the egges of an Owl broken and put into the cups of a drunkard, or one desirous to follow drinking, will so work with him, that he will suddenly lothe his good liquour, and be displeased with drinking.

The Bat.

The *Bat* may be next; because she useth to flie abroad in the twilight: called therefore *vespertilio* in the Latine, and νυκτερὶς in Greek. It is a creature between a bird and a beast, for it hath a mouth, teeth, members of generation like a beast, bringeth forth young ones alive, laying no eggs, &c. Onely it flies in the night, and hath wings like a bird. It is therefore called by some a *Flittermouse*, and is no bird but a winged mouse; for she creeps with her wings, is without feathers, and flyeth with a kind of skin, as bees and flies do; excepting that the Bats wing hath a farre thicker and stronger skin. And this creature thus mungrell-like, cannot (as you know) look very lovely.

The Cuckoe

But not to keep you longer amongst these birds of night, for fear some one or other should affright you, let us now go walk & heare the *Cuckoe* sing. This is a bird so called by reason of his crie; and from thence comes the Greek κόκκυξ, and the Latine *Cuculus*: for the noise which this bird maketh, and the song which she singeth, is nothing but *Cuckoe*. This is her note; which note she neither varieth nor changeth untill she be wearing away. *Olaus*

Lib. 19. *Olaus Magnus* calleth her the *Annunciatrix optatæ lætitiæ*; which is not in respect of her sweet singing, but because when she cometh, then comes that cheerfull time of the yeare, the wished and the welcome spring.

She loseth her voice commonly about the end of July, or somewhat before; faltring and doubling in her note when summer is wearing out. So have I seen those who in time of prosperity have been very cheerfull, forward, and observant of others, attending them with fair words and great shews of love: but when times change, they also changed; shewing themselves dull and backward, and yet shewing themselves then no other then they were. For these be friends who will abide no winter, but falter now, even as they flattered before, never remembring their former words, how plain and fair soever they seemed;

False friends.

Jura, fides, ubi nunc? commissáque dextera dextræ,
Quique erat in falso plurimus ore Deus?

Whereas a true friend indeed, is onely known in time of trouble. For it is a certain rule. *Amicorum idem affectus, Friends are alwayes like affected:* according to that of the Poet,

Ovid. Epist. *Et flêsti, & nostros vidisti flentis ocellos:*
Miscuimus lacrymas mœstus uterque suas.

Thou diddest weep, and didst my moist eyes see:
We mixed grief, and wept for thee and me.

Furthermore, this is a fowl hated of every other bird, because she spoileth their nests and eats their egges.

Neither is she very fruitfull; for one at a time is enough for her: neither is this one hatched but by some other of a differing kind; for she doth not build any nest, but layeth her egge in the nest of another, which hatcheth it up as her own. Nay it so falleth out, that the poore, sillie and deceived bird thus beguiled, neglects her nearer brood, as being better pleased with the beautie of the Cuckoes

Cuckoes young, untill at the last this stranger thus brought forth and being ready to fly, destroy his nurse, and kill her for her kindnesse. So have I heard of some, no better rewarded for their good entertainment and watchfull care. For benefits received are little remembred: and where men sometimes look for love, they are wickedly repayed with hate and harm.

Also there appears from hence another embleme. For in the Cuckoe is deciphered the wicked practice of adulterous men, who are not ashamed filthily to defile their neighbours bed: From whence we call them cuckolds, who suffer this wrong, and yet are innocent; whereas indeed the lustfull Goat that acteth all, and performs the villanie, is the very cuckold; and the other (poore honest man) wronged not onely in his bed, but in his name, is the harmlesse patient of what he cannot help. Yet this I will say, that whilest many make *Peacocks* of their wives, they do also make *Woodcocks* (although not *Cuckoes*) of themselves: in which, whom they may thank, it is soon perceived; or whom they may blame, their folly telleth. For sigiies hanged forth are but the callers in of guests; and baits presented allure fish: and as nothing sooner invites the thief to cut a purse then shew of money, so nothing sooner occasions an enticement to disloyalty, then the gaudie vestments of an immodest wife; as in this following Epigram may appear,

Adulterous men like the Cuckoe.

A lustie lad that past along Cheapside,
Incontinent a gallant lasse espi'd:
Whose tempting breasts (as to the sale laid out)
Invites: and thus this youngster 'gins to flout.
Lady (quoth he) is this flesh to be sold?
No, Lord (quoth she) for silver nor for gold:
But wherefore ask you? and there made a stop.
To buy (quoth he) if not, shut up your shop.

The *Swallow* is a bird likewise which comes in the Spring,

The Swallow.

Spring, and goeth away again before Winter. Some think that they repair into those countreys where they may rest upon the sides of such warm mountains as lie open to the heat of the shining sunne; and that there they have been found naked, and without their feathers. *Plin.*

But *Olaus Magnus*, in the nineteenth book of his Northern History, writeth otherwise; saying, *Although the writers of many naturall things have recorded that the Swallows change their stations, going, when winter cometh, into hotter countreys: yet in the northern waters, Fishermen often times by chance draw up in their nets an abundance of Swallows, hanging together in manner of a cõglomerated masse.* Adding moreover, that in the beginning of Autumne they gather themselves together among the canes or reeds; where, providing themselves to sink into the waters, they joyn bill to bill, wing to wing, & foot to foot. *For it is observed* (saith he) *that at that time having finisked their sweet singing, they descend in such a manner; and quietly again, after the beginning of the Spring, they fly out thence and repair their former nests.*

This the said Authour affirmeth with much confidence; and doth likewise say, that some young men have taken this masse, and by heating of it, the Swallows have been again disjoyned, beginning to fly: but they lived not long, because their time should have been a great while more to bring them to perfection. This I confesse is strange, but why may it not as * well be, as that of the *Barnacle* or *Brant-geese*; of which it is certain that they first grow on trees? See more of them in the third day.

Ælian saith that the Swallow is a watchfull bird, and sleepeth but by halves and fits (as we say) which is no sound kind of rest. And again, her swiftnesse in flying is commendable; and as for her diligence and dexteritie in building a nest, it deserveth praise: insomuch that

* And so much the rather, because they are seen in hotter countreys when they be gone from hence; neither can any one shew a cause for every thing in Nature.

that some have said, *The Swallow taught men first to build. Plutarch. de indust. animal.*

Flying she sings, and singing seeketh where
Sh' her house with cunning, not with cost may rear.
Her little beak she loads with brittle straws,
Her wings with water, and with earth her claws,
Whereof she morter makes, and therewithall
Aptly she builds her semicircle wall.

Du Bart.

Next after the *Swallow*, I may come to the *Turtle*. It is a bird which singeth not, but hath a kind of groning in stead of singing; true to her mate, of admired chastitie, lives long, is absent from us in winter; and (as some think) being gone, she loseth her feathers; as *Plinie* likevvise vvriteth of the Svvallovv.

The Turtle.

She is also a very harmlesse creature, and without gall. Which if man could frame himself to be, the serpents vvisdome vvould not hurt him, nor lean-fac'd envie sojourn vvith him. But being more vvise then innocent, he makes others grone more at his vvrongs, and under his burdens, then he himself either doth or did for his ovvn sinnes.

Innocency to be learned from the Dove.

Columbus, the *Dove* or *Pigeon*, may be next, because it is near of nature to the Turtle. These fovvls sit upon their egges by course, and aftervvards vvhen they be changed from egges to young ones, the cock doth feed and foster them. They commonly bring forth tvvo at a brood, the one a cock, the other a hen; and have young about ten times in a yeare. But some vvhich vvrite of Egypt (saith *Ælianus*) declare that the Pigeons in that countrey breed tvvelve times in a yeare.

The Pigeon.

Neither doth the cock tread the hen, before he hath courteously saluted her vvith a kisse. For the hen vvill not have company vvith him, untill that first debt be duly paid. Some (vvho vvrite of India) report that there be Pigeons in that countrey of a yellovv colour. And as for

Stock-doves, they differ from Pigeons, because the Pigeon is somewhat bigger, and not altogether so wilde. But the Ring-dove is much greater then any of them, and is thought to live about thirtie or fourtie years.

Furthermore, Pigeons take great delight to sit by the banks of waters and crystall streams: which some think to be, in regard that (like women) they love to behold themselves, as in a mirrour or glasse. And if nature hath taught them that piece of pride, it brings them no small profit: for whilest they thus sit by the water side, they can soon perceive when the Hawk is coming towards them, because his shadow or image will appear in the water; and so being fore-warned, they cannot but be fore-armed, and prepared against such mischief as that devouring bird intendeth to them.

These fowls be naturally very hot and moist, wherefore they be not good for those that be cholerick or inclined to any fevers: but to them which be phlegmatick and pure melancholy, they are very wholesome, and be easily digested.

The Sparrow.

The *Sparrow* dieth quickly, is very lascivious, and if it be a cock, lives not above a * yeare; if a hen, it hath a longer time. *Plin.*

* *Plinie* thinketh so: but I suppose, that although their time be short, yet it may be more then a yeare.

They be of a very hot nature; and (as *Geminianus* writeth) will, without harm, sometimes feed on the seeds of henbane. Their flesh is hard to digest, they stirre up Venus, especially the cock sparrows. But being boiled in broth, they are restorative, and good for weak or aged persons.

A storie of a Sparrow.

Ælian, in the 13 book of his variable historie, speaking of *Xenocrates* how he was much enclined to pitie, tells a story of a Sparrow which flew into his bosome. As this man (saith he) on a time was sitting in a sunnie place, a little chirping Sparrow pursued by an Hawk by whom she was almost wearied to death, and fainting in flight, fled

fled into the bosome of *Xenocrates*; which when he saw, he entertained her with delight, and harboured her very tenderly till all dangers were past, and then he gave her free passage to flie whether she would; uttering these words when he cast her up into the aire, *Hosti supplicem non prodidi, I have not given one craving succour, into the hands of his enemie.* And (indeed) to help the helpless, harbour the houselesse, deliver the distressed, and defend the wronged, *ad astra usque tollit*, nay *supra astra* rather; and is a divine practice worth recording, and not unworthy imitation.

The Peacock.

The *Peacock* is a bird well known, and much admired for his daintie coloured feathers, which, when he spreads them against the sunne, have a curious lustre, and look like gemmes. Howbeit his black feet make him ashamed of his fair tail; and therefore when he seeth them (as angrie with nature, or grieved for that deformitie) he hangeth down his starrie plumes, and walketh slowly in a discontented fit of solitarie sadnesse; like one deeply possest with dull melancholy: from whence it is said, that he hath *a theevish pace, and a hellish voice.*

An example of envie.

Neither is he other then a perfect embleme of deep envie. For * some write that his dung is very medicinable and usefull to man in many things; which he therefore striveth to hide, and conceal: being indeed the right trick of devilish envie, which is best pleased when she can but exclude the communication of such things as would do good, if they might be had.

* *Geminian. lib. 4. cap. 13.*

The flesh of these fowls, if they be old, is hard of digestion; and so do physicians likewise write of the *Turkie-cocks*: but yet the chickens of either of them about half a yeare old, are good and wholesome.

The Cock.

But I leave this bird, and come to the *Cock*. He it is who is a constant herald to the new-born day, and a diligent watch to the silent night, altering in his note as the

the day approcheth: for in the deadest time he crows more deeply then when the night is wearing out; shewing thereby as it were the differing houres, and changing watches.

The Cockdaunteth the Lion.

It is said that the shrill voice of this commanding fowl, will keep in aw the grimme and fierce Lion: so *Plinie* writeth; but others have said the contrarie, because it hath been found that Lions have sometimes strangled Cocks and Hennes without fear: and yet perhaps this might be through the antipathie which is between them. For in this it is free for every one to think what he pleaseth.

Cock-fights.

Neither is it now any other then a common sport to see such creatures enter battell with their weaponed-wounding heels, and cruell pecking beaks. The originall of which (as * *Ælianus* writeth) was after this manner.

* *Var. hist. lib.* 2.

A storie concerning Cock-fighting.

When the Athenians had vanquished the Persians in a battell, they made a law, that upon one day in every yeare, there should, upon the open theater, be a Cock-fighting kept to be seen of all; that observing how they fought and endangered themselves for nothing, others might learn not to be daunted when their countrey lay at the stake, but fight with courage unresistable; because they then fought for something. To which purpose it is recorded, that when *Themistocles* was captain, and spectatour of such a Cock-contention, he spake thus to his souldiers: *These two Cocks* (saith he) *endanger themselves, as we see, to the death, not for their countreys cause not for the houshold gods, not for the priviledges of their honourable ancestours, not for renown, not for libertie, for wife and children: but onely for this, that the one might not over-crow or beat the other. And therefore the hearts of the Athenians ought rather to be stored with stoutnesse and audacitie, that thereby they may purchase perpetuall remembrance.*

Ibid.

Close

Close by his side stands the couragious Cock,
Crest-creatures king, the peasants trustie clock,
True morning watch, Aurora's trumpeter,
The lions terrour, true Astronomer,
Who leaves his bed when Sol begins to rise,
And when sunne sets, then to his roost he flies.

Du Bart.

The *Crane* is said to be a shifting bird: it hath high legges, a long beak and neck; which finding no food in winter in the northern regions, by reason of the great cold, retire themselves into more temperate countreys, and in summer return to the north again.

The Crane

They flie by companies, feed together, love their own kind, and appoint one to be king over them: and if at any time they fight among themselves, presently they be again reconciled, and keep their societie as before. They have a watch, and watch by course; there being in the claw of that Crane whose turn it is to wake, a little stone, that so if by chance this watching bird should fall asleep, the stone falling down might again awake him. *Gemin. ex Aristot.*

Moreover it is said, that when they do alight upon the ground, their king is first, and he also first raiseth himself from the earth and looketh round about him, to see whether any one be coming, that thereby giving warning, they might defend themselves. Which is (indeed) a fit embleme of carefull pastours, good magistrates, and honest governours, whose part it is to be at all times vigilant for the good of those over whom they are. Nay, their captain and their watching, doth not onely shew the care which ought to be in governours, but also the necessitie of government is deciphered by it.

Care ought to be in Pastours, Magistrates, and Governours; taught by an example from the Crane.

And again it is reported, that when these birds flie out of *Cilicia*, over the mountains *Taurus*, each of them carrieth

The tongue hath brought many to mischief.

rieth in his mouth a peble stone, lest by their chattering they should be seized upon by the Eagles. So have I seen those whose unbridled tongues have but brought them to mischief, and rouzed the Eagles about their eares: whereas *in little medling is much rest; & nothing said is soon amended.* The wise man therefore will wear discretion as a stone upon the tip of his tongue, lest chatteri ng such words as he knows not what, he meet with that which he looks not for.

And now I could speak of the warres which the Cranes have against the Pygmies, whom *Du Bartas* calleth *Dwarfs of the North*: but I had rather referre you concerning this to *Plinie*, in the second chapter of his seventh book. Physicians tell us that the Crane is hard of digestion, and maketh ill juice; but being hanged up a day or two before he be eaten, he is the more tender, and lesse unwholesome.

The Swan.

The silver *Swan* is a white bird, living in marshes and calm rivers; very loving unto his fellow, the male to the female, whom when he draweth to him, with his long neck he doth as it were embrace her: wherefore in Greek he is called κύκνος, of κύκω, *to embrace* or *kisse*; whence also is derived the Latine *Cygnus*. They do one defend the other, and sit upon their nest by turns, and equally have care of their young ones when they be hatched: neither can the he-Swan endure that the she should companie with another; in which they be a perfect pattern of chaste, mutuall, and matrimoniall love. Howbeit they will sometimes fight very fiercely with their own kind: and against the Eagles they have cruell battells, striving not so much to obtain rule, as to revenge their injuries.

A pattern of matrimoniall love.

It is likewise said that they sometimes sing, but never more sweetly then when they be dying and exchanging life for death: of which some doubt, and approve it as a thing onely spoken in a poeticall manner; yet *Aristotle*

is

is against them, affirming that many have heard them sing in the Assyrian sea. To which purpose, *Martial* hath this epigram,

Dulcia defecta modulatur carmina lingua
Cantator cygnus; funeris ipse sui.

Sweet strains he chaunteth out with's dying tongue,
And is the singer of his funrall song.

Wherein he is a perfect embleme and pattern to us, that our death ought to be cheerfull, and life not so dear unto us as it is. And from hence came the proverb, *Cygnea cantio*, which is but *a lightning against death.*

Death ought to be cheerfull.

I formerly made mention of the *Raven*: but beside the Raven there described, there is also a *Sea-raven* or *Sea-crow*, which is a bird very black unlesse it be on the breast and bellie, upon which they be of an ash-colour. They hunt after fish, and have toothed bills like unto the reapers sickle, with which they can hold even an eele, as slipperie as it is. The dung of this bird is of an evil nature: for it will rot both the boughs and barks of such trees as it falleth upon; and so it is also said that the dung of the Heron doth. *Olaus, lib. 19.*

The Sea-crow.

The said authour speaketh of another Sea-crow, which in seven dayes builds her nest, and in the next seven layes her egges and brings forth young: and of another which he calleth *Morfex*, or *Hunnusculus*, so called because she must beat the water with her tail before she can flie. She is black all over, and with the residue of her companie useth to build her nest upon the tops of high trees, growing near to such places where be store of fish, which they catch and devoure very greedily: and of these birds there be great store in the more Northern parts of the world. But they have especially two enemies: the one is a bird which *Olaus* calleth *Platea*; the other is a fish which is called *Raia*.

A bird called Platea.

The *Platea* lies in wait for these crows, and flies at them when they have gotten their prey, and never leaves biting them upon their heads, untill she cause them to leave it. This bird useth to swallow down an abundance of whole cockles into her bellie, and there having warmed them, she casts them up, and then their shels gaping, like unto the rosted oister, give her leave to take out their meat and eat it: which sheweth (as I said once before, in the description of another bird) that policie is better then strength, and in the hardest matters prevaileth best.

Policie is better then strength.

The other enemie is not a bird, but that fish which we call the *Ray*. For whilest the devouring Crows be diving under water to catch their prey, they themselves are caught by this fish and devoured suddenly, lest otherwise they might want a revenger of their rapacitie even where and whilest they do wrong. Howbeit this *Ray* is a loving fish to man: for swimming in the waters, and being greedily pursued by the devouring Sea-dogs, the *Ray* defends him, and will not leave him untill he be out of danger.

The Ray kills the Sea-crows.

There be also an abundance of other birds in those parts of strange properties, and names scarce known: of which, they who have a desire, may reade more in *Olaus Magnus*, the nineteenth book of his Northern historie.

The Plover.

The *Plover* is *Avis pluvialis*, and a fowl well known: howbeit some have thought that they live onely by the wind, and eat nothing at all; but they deceive themselves in this opinion, as experience teacheth. For they have not onely been seen to feed, but taken also with meat in their crops. And that which first occasioned this errour, was their quick digestion; for they commonly eat things that are easily digested, and soon consumed. *Plover*, * saith one, is thought to be a daintie dish and right wholesome, yet it is slow of digestion, nourisheth little,

*See the haven of health, pag. 136.

little, and increaseth melancholie. The like he affirmeth of the *Lapwing*: but the *Teal* he yieldeth to be somewhat better.

Moreover, the Plover flying high doth signifie rain: which bird *Olaus* describeth after this manner: There is saith he, a bird which we call *Avis Pluvialis*, about the bignesse of a Partridge, supposed to live by nothing but aire, because her bellie useth to be emptie of meat, and yet she is very fat: her feathers are diversly coloured, some with white, some with black, and some with saffron colour: and this bird the fowlers thus hunt; by throwing up into the aire short heavie clubs: for by so doing they cause her to descend, and being descended, they catch her in their nets, laid readie for the same purpose.

The Lapwing.

Upupa or the *Lapwing* is a bastard-plover. This is a querulous bird, flying up and down lapping and clapping with her wings; from whence she is called a *Lapwing*: and in Latine she is named *Upupa*, from *pu, pu*, which is the crie that she maketh; thereby securing her nest and young ones from our finding. For by this practise she will draw us away from them as farre as she can. The combe or crest upon her head, gave *Ovid* a fit occasion to feigne a tale of a * king turned into a Lapwing, whose crown doth yet appear upon the head of this bird.

* *Tereus rex Thracum. Met. lib. 6.*

The Lapwings fight often with the Swallows, Jackdaws, and Pies, and by their much crying do signifie rain. And as for their young, being as it were half hatched, they will runne from their nests with the shells on their heads.

The Osprey.

The *Osprey* is a ravenous bird which hovereth over pools to take fish; having one claw foot, and another flat.

The Charadrion.

Galgulus-Icterus or the *Charadrion*, is a bird unto which

which some ascribe this strange property, *viz.* that if any who hath the Jaundise look upon him, and the bird on him, the bird then taketh the disease and dieth, but the man is cured, made sound, and liveth. Such are we, by nature sick unto death, but by Christ (who died for our sinnes and rose again for our justification) we are cured, made sound, and live.

An emblome from the cure done by this bird, concerning our cure wrought by Christ.

Porphyrio. *Porphyrio* is a bird drinking as though he did bite the water; his bill and legs are red and long.

The King-fisher. *Halcyon* or the *King-fisher* is a bird which maketh her nest in winter upon the sea, during which time there is a calm and quiet season: whereupon we call those dayes *Halcyon dayes*, wherein we have peace, rest, and quietnesse. They live also about rivers, laye five eggs, and (as * *Plinie* witnesseth) are seven dayes in preparing their nests, and in the other seven they bring forth their young.

*Lib. 10. cap. 32.

The Poets have a fiction of *Alcyone* and *Ceyx*, who were turned into these birds: For when *Alcyone* heard that her husband *Ceyx* was drowned in his way home from a certain voyage, she cast her self into the sea, and then for the pitie which the gods had of them, they were both transformed into *Halcyons*. But without any fiction, this we are sure of, that it is a strange bird; and as it were natures dearest darling; seeing that in favour of her nests and young, the waters leave their raging, the winds their blowing, tempest have forgot to rise, and dayes appear with quiet calms.

Ovid. Met. lib. 11.

Du Bart.

The Pirate (dwelling alwayes in his bark)
Her building dayes desiredly doth mark;
And the rich merchant resolutely venters,
So soon as th' Halcyon in her brood-bed enters.
For so long as her quiet couch she keeps,
The boyling sea exceeding calmly sleeps.*

*He names onely the Sicilian-Sea.

This is a bird which feedeth upon fish, and by diving after

after them, catcheth them; as is not seldome seen.

In the Summer islands, amongst other things, we heare of varietie of fowls. For upon the discovery of those parts by Sr. *George Summers*, and Sr. *Thomas Gates*, an abundance of fowl were taken. They took a thousand of one sort in two or three houres, being as big as a Pigeon, and laying speckled egges upon the sand, as big as hennes egges which they would daily come and lay, although men sat down amongst them. *Purch.* *Bermuda birds.*

There also is another fowl that liveth in holes like cony-holes; their egges like to hen-egges, both in quantitie and qualitie. And other birds were there found so tame and gentle, that whistling to them, they would come and gaze on you, while with your stick you might kill them. *Idem.*

But in Asia, in one of the *Molucco* islands named *Tidore*, is a strange bird which they call *Mamucos*, or *birds of Paradise*: they have lesse flesh then the bodie maketh shew of; their legs be in length about a hand-breadth, their head small, their bill long, their feathers fair & of a singular beauteous colour: Authours write that they have no wings, neither do they fly, but are born up in the aire by the subtiltie of their plumes, and lightnesse of their bodies. They are never seen (saith my Authour) upon the ground but dead, neither do they corrupt or rot in any sort. There is no man knoweth from whence they issue, neither where they breed up their young ones, nor whereupon they nourish themselves. The islanders believe that they make their nests in Paradise, and tell many fables thereupon: which persuasion the Moores first put into their heads. They call them *Mamucodiata*, or *holy birds*, and have them in religious account; insomuch that some of them have believed that souls are immortall, by the consideration of such a bird. And, as for the sustenance which keeps this fowl alive, although it be hard *Birds of Paradise.*

hard to say upon what it is maintained, I do easily think that we may listen to them, who suppose that they nourish themselves, and maintain their lives by the devv that falleth, and the flovvers of the spices. See *Gesner de Avibus, lib.* 3.

Some have vvritten that it is a bird vvithout legs: but Mr *Purchas* in tvvo severall places alledgeth the testimonie of one *Pigafetta, vvho vvitnesseth that it is a bird having two feet aswell as other birds; but as soon as they be taken, they are cut off, vvith a great part of their bodie, vvhereof a little is left with the head and neck, which being hardened and dryed in the sunne, seem to be so bred. And other Authours vvitnesse that there vvas one of them sold to the Emperour in the yeare 1605, vvhich had legs on it.

Cardan likevvise mentions this bird; but seeing his report is differing from our modern vvriters and travellers, I forbear to rehearse it: Hovvbeit they vvho reade *Gesner* shall see it in his third book of birds, together vvith a figure of this fovvl.

The Cucuios.

But out of Asia look yet once again into America: and then you shall see as strange a vvinged creature, as any vve have heard of yet; I mean the Nevv Spains *Cucuios*, vvhich vvhether I may call it bird, or beetle, I cannot tell. He is very little, and of the thicknesse of a mans thumbe or thereabouts; but amongst the vvorks of God, he is a most admirable vvonder. For he carrieth foure lights vvith him, vvhich *shine in the night; tvvo in the seat of his eyes, and tvvo vvhich he shevveth vvhen he openeth his wings. And as for his wings, he hath two very strong and hard, under vvhich he hath tvvo other little vvings very thin, vvhich appear not but vvhen he extendeth his other to fly. The Indians use them in stead of candles, and (saith my * Authour) if a man tie five or six of them together, they yield as much light as a torch. And

*Who also writeth that he saw a tree in the East-Indies, the leaves of which changed themselves into birds, who lived but 8houres. *Du Bart. Sum.* And of birds in the Moluccos as big as hens, with horns in stead of crests: They lay their egges in the sand, and there they be hatched.

*Like unto which are those birds mentioned by Plinie and Solinus. *Plin. lib.* 10. *cap.* 47.

*See Purch. and Du Bart. Summary, pag. 240.

And loe, just novv, as if it vvere by the light of this creature, me thinks I see the painfull and industrious *Bees* fly flocking to their hives. *Bees.*

These be those vvinged vvorkmen, vvhich vvhether their profit or admiration be greater, I am scarce able to say. For they do not onely busily bestirre themselves to gather hony, vvhich is very usefull in the life of man; but they do work it up in most strange manner, & keep it in their vvaxen cells so rarely built, that all the men which the vvorld affords are not able to do the like. Neither is this all; for they live so, as they may be true patterns of needfull government, keeping themselves under the subjection of a king, and order of lavvs. They may vvell be likevvise said to have the soveraignty and preeminence above all others of this kind, because the rest come farre short of their perfections.

It is a creature having foure vvings, and bloudlesse, the onely crafts-master of honie. Their eyes are somevvhat of a horny substance, hid deep in their bodies, as is also their sting; vvhen vvhich they lose they die:

——Vitam in vulnere ponunt;

because their sting and entrails come avvay together. They vvant neither tongue nor teeth; and out of their short feet or stumps, there grow forth as it were two fingers, vvherein they carry a little stone, for the poysing their bodies in stormy, vvindie, tempestuous vveather; it being a great means to keep them from blovving avvay and losing their home.

Neither can it be denied, but that by nature they are much different: for some (saith *one) are more domesticall and tame, and others again are altogether vvild, uplandish and agrestiall. Those former are much delighted with the familiar friendship custome, and company of men; but the other can in no vvise brook or endure them, and therefore they keep their trade of hony-making in old trees, caves and such like other holes.

*Topsel in his Hist. of Serpents

As

As for their breathing, I do not believe it; howbeit they may pant, move, or ſtirre (as the heart or brain doth) and by tranſpiration be comforted and made lively: for they be much refreſhed by the aire which paſſeth through their divided places, inſomuch that they alwayes uſe great diligence and care to preſerve them from being ſtopped: for as ſoon as they be ſtopped in thoſe paſſages, they die; as we ſee if at any time they chance to fall into oyl, or the like liquour which may ſtop their pores.

Some make three kings amongſt them, differing in colour, as black, red, and divers-coloured; but perhaps there is rather one king in a companie, the other like kings may be eſteemed as viceroyes. In their breeding they actually couple together, after which they lay egges, ſitting upon them for the ſpace of five and fourtie dayes; then do thy hatch their young ones, which at the firſt come forth much like to white worms, except the king, who onely is ſaid to be hatched with wings. And ſometimes there is a kind of Bee bred out of putrefaction, as Authours write. A rotten horſe breedeth Waſps; a dead calf Bees, if the Weſt wind blow; from an aſſe proceed Humble-bees; of a mule, Hornets, &c. And whether the Bees, in Sampſons dead Lion, were bred any where elſe, no man knoweth.

They have a Commonweal, and are governed by a king, as before was mentioned: and him they reverence and honour, being alwayes readie to do according to his pleaſure. He is of bodie farre bigger then the hony Bees, hath ſhorter wings, but a brighter and more goodly head then they. There is alwayes excellent diſcipline, and very good government among them: for at the mouthes of the hives there be ſome which ſtand like warders placed at the gates of a caſtle, to ſee who goes in and out. And having reſted quietly all night, there is one which with a humming noiſe doth call them up, whereupon they prepare

pare to flie abroad about their businesse: but if they make no haste to look out, or go not farre from home, it is a certain signe of no good weather. When they be busie at their work, the Bees which go abroad return home with laden thighs, full of the substance of the flowers; and this especially is said to be an office of the younger Bees: for some of the other do onely carrie water; and the elder ones remaining at home, do busily lay up, carefully dispose, and curiously dresse what the other bring in. Such as be sluggish among them, are diligently observed, and bitterly punished: and as for the drones, they are supposed by some to be the female Bees, which they drive out of their hives when breeding time is past; and therefore they do ill who use to kill the drones before. Others again think that the female Bee is no drone, but rather bred among the Bees, and being idle, and unapt for work, is driven away either in the busiest time, or time of dearth. And yet perhaps it may be the female, which having done as much as can be naturally required from her, must not think much to be driven away, but leave her room to a succeeding generation.

I said before, that in the morning there is one among them which calls them up, and so in like manner at night they leave their buzzing by degrees, at last hearing as it were a proclamation through their hive to go to rest: and so the watch being appointed, and all things set in order, they all make themselves readie to go to bed. So long as the king liveth, so long the whole swarm enjoyeth the benefit of peace; but he being dead, there is great disorder. The king keepeth his court by himself, in the highest room and largest part of the whole palace, his lodging being very curiously made. And if at any time any of them chance to die, they be carried out of the hive, as it were upon the shoulders of the other Bees, who will suffer nothing in their houses which may pollute them: but

if

if they be onely sick, then have they a medicinall aliment of hony, drawn from anniſe, saffron, and Hyacinths, by which they are cured. *Topſell.*

And when they be readie to ſwarm, they dare not take their flight untill their king leade the way; unto whose side they strive to flie, as near as they can. Some say, if their king be such as tenders the good of the other Bees, he goes but seldome abroad: and straglingoften from home, they will rid themselves of him. But when he dies through age, they carrie him forth in solemne manner, and behave themselves as at some sad funerall. Neither is he so tied to his home but that he may sometimes go abroad to refresh his aged bodie, whom they accompanie in a sweet obedientiall manner; and if it chance that he grow wearie and faint by the way, they bear him back again upon their wings, and with great commiseration pitie his decayed estate. Moreover they will not suffer a dead Bee to be in their hives, but carrie him forth as to his buriall, lest he should corrupt their pure and cleanly decked dwellings.

Topſ. hiſt. Serp.

Wasps.

Vespa, the *Wasp*, is an angrie creature: they make them nests most * commonly in the ground; their combes be round, much after the fashion of a broad toadstool; and their cells are diversly fashioned. They be very tenderly affected to their females when they are with young, and will not suffer them to take any pains, but lay the whole burden upon themselves. Like unto the Bees, they affect a kingly government; and in case they have no leader, they make their nests in holes of clay, walls, and the like; where they live like vagabonds and gather nothing. They do oftentimes rob the Bees, and (as I said) be very angrie creatures, implacable, and very noxious to those who disturb their nests. *Aristophanes* calleth all those maids which are fine, slender, and prettie small in the waste, σφηκωδεῖς, resembling them to

* But sometimes in thatched houses.

Wasps

Wasps; which by *Topsell* is interpreted, as if he should name them *Wasp-wasted-wenches*: the reason whereof is, because the bodie of a Wasp seemeth to be fastened together to the midst of the breast, with a certain thinne fine thread as it were; and to be as if they had no loins at all. And as your finest bodied wenches are like them in their waste, so sometimes too like them in their sting; by which their best beautie is eclipsed: and better were it to endure the continuall droppings and thunderings of a rainie day, then the waspish harms of wicked women, whether it be that they carrie their stings either in tongue or tail.

Hornets.

The *Hornet* is called by the Grecians σφήκων, because with their sting they raise an *Anthrax* or carbuncle, with a vehement inflammation of the whole part about it: & in Latine it is called *Crabro*. These creatures do not gather their meat from flowers, but for the most part they live upon flesh and stinking carrion, which makes them delight so much in dunghills. They use likewise to catch flies, and hunt after small birds, which if they can but sting, they kill. Mr *Topsell* makes mention of a strange combate between an Hornet and a Sparrow, which he himself saw, at a town called *Duckworth* in *Huntingtonshire*; and the Sparrow lost the day: for being wounded by the Hornets sting, the bird fell to the ground and the Hornet greedily sucked her bloud. The said Authour writeth that their life is but short, never above two years: and as for their combes, they be wrought with greater cunning, more exquisite art, and curious conceit, then those either of Wasps or Bees; neither need we doubt (saith he) but that they bring forth young by the sides of their cells, and perform such other offices in their breeding as the Bees and Wasps do.

A fight between a Sparrow and a Hornet.

The *Gray* or *Badger* is their greatest enemie; for in the full of the moon he useth to make forcible entrance into

The Badger an enemie to the Hornet.

 their

their holes, and without fear he is able to spoil their nests. And albeit they most commonly feed upon flesh, yet they do greatly love all kind of sweet things, and oyl, with other matter of a greasie substance.

A good medicine against stinging.

And for to make a medicine against the sting of bees, hornets, or wasps, do thus. Take of opium, of the seed of henbane and camphire, of each a like quantitie, and incorporate them with rose-water or juice of willows, and lay it upon the wounded place, applying on the top of it a linen cloth, which must be first throughly wetted in wine, and this is good to asswage the pain. Vineger and camphire are also excellent to wash any such place.

Cantharides.

Cantharides are flies whose juice is poison: they shine like gold, and must be carefully used in any experiment, otherwise they do much harm; as the unskilfull and adventurous have sometimes proved to their own cost.

Pyrausta.

Pyrausta is a flie so called from πῦρ, *ignis*; because it lives in the fire, and dieth without it. *Plin. lib.* 11. *cap.* 36.

Tarantula.

Tarantula is a little flie, frequent in Italie: it will many times sting the people, whereupon they presently fall a laughing; and if musick be not forthwith brought them, they cannot choose but in a mortall merrie fit take leave of the world and * die. Neither can they at all be cured, unlesse by hearing musick: and (as it is reported) if the cure be not throughly done, they dance ever after at the sound of musicks pleasing strains: shewing thereby, that this is a creature, an admired creature, and of a strange propertie.

* Like unto which is an herb in Sardinia, of which if any eat much, they perish and die laughing. It is like to Balm gentle. *Munst.*

Bombyx.

Bombyx is commonly called the *Silk-worm*: but whether I may name it a worm or a flie, I cannot tell. For sometimes it is a worm, sometimes a flie, and sometimes neither worm nor flie, but a little seed, which the dying flies leave behind them.

As for example; when these daintie creatures have made

made them little husken houses, and spunne out the just length of their silken webs, they eat out themselves from those prisons; and (although they were worms before) yet then they appear with their prettie wings, and flie about a while: in which space the male accompanying with the female, doth as it were tread her; and then, laying some certain egges, like little seeds, they cease to live any longer: from which seeds proceed more young ones (at the first like maggots) and they do as their dammes before them, and then die.

And let this creature end my discourse concerning the things done in this fifth day; wherein, not able to mention all, I have toucht at some; and those so excellent, as I could have spent more time in their better view, were it not that the succeeding day hastens his dawning. In the phrase of Moses I will therefore conclude, and concluding say,

The Eve and Morn confine the fifth of dayes,
And God gives to his work deserved praise.

CHAP. IX.

This ninth chapter concerneth the creatures made in the sixth and last day; namely creatures living neither in the aire, nor water, but upon the earth: and these be of two sorts, the brute beasts, and Man.

This chapter hath two Sections.

Sect. 1.

Wherein is both a division and entrance into this dayes work; as also a discourse of the first part of it, concerning the brute beasts, whose creation was in the first part of the day.

THe just period of the fifth day being come to an end, the sixth approcheth; wherein God Almightie shutteth up the creation of every *species*: and after all, he resteth from his work, and watcheth by his providence over each part and parcell of the world which he had made.

And in this day he first produced the brute beasts living upon the face of the earth: then he comes to the creation of man, and makes him the *Colophon*, or conclusion of all things else; in whose nature he placed the greatest dignitie of any creature that is visible: for man is

is of a middle between the beasts and Angels, transcending the one, and yet not worthy to equalize the other; as afterwards, when I come to that particular, shall be declared, with other things pertinent to his creation.

And now, that the terrestriall beasts and he should be made both in one day, is worth observing: for had he been to live in the aire, he might have seen the sunne with the flying fowls, and have been created when they were made: or had his habitation been in the waters, the fish and he might both at once have been produced. But being made, neither to swimme with the fishes, nor flie with the birds, but live upon the earth, it was most harmonious that the terrestriall beasts, and his creation, should in the same day the one succeed the other. And that the end might shew the perfection of the work, the prioritie of time is given to the beasts; but the excellencie and prioritie of all appears in man, who was made *Lord of the creatures*, and in whom God had placed a surpassing condition, and (by farre) a more noble nature. For whereas they are led by sense, he hath reason; whereas they look downwards and groveling from the skie, his countenance is erect, and his looks are mixt with majestie; whereas they are animate without an immortall soul, he liveth when he dieth, and hath a soul which death it self knows not how to kill: and whereas their bodies fall and never rise again, his riseth when it is fallen, and is like seed sown, which sprouteth up when the time is come.

The creation of beasts.

If this then be both the order and cause of such an order in this dayes work, I must leave the most excellent piece untill the last, and begin first to look and observe how the beasts, in their severall kinds and daintie squadrons, march up and down, and walk from out the shop of their Creatour; being brought to perfection even as soon as that powerfull word who spoke it, did onely say it, *Let them be.*

It would (I confesse) require no small volume to discourse of all. Howbeit even in a few, the glory of their Maker may well appear ; and vvith that thought let us name some, by vvhich vve may admire the rest.

The Elephant.

And first consider vvhat a strong vast creature the mighty *Elephant* is knovvn to be. There is no creature (saith * one) among all the beasts of the vvorld vvhich hath so great and ample demonstration of the povver and vvisdome of Almighty God, as the *Elephant* ; both for proportion of body, and diposition of spirit : and it is admirable to behold the industrie of our ancient forefathers, and noble desire to benefit us their posteritie, by searching into the qualities of every beast, to discover vvhat benefits or harms may come by them to mankind: having never been afraid of the vvildest, but they tamed them ; and the greatest, but they also set upon them: vvitnesse this beast of vvhich vve novv speak, being like a living mountain in quantitie and outvvard appearance yet by them so handled, as no little dog could be made more serviceable, tame or tractable.

*Topsel.

They are usually bred in * the hot eastern countreys, for by reason they cannot well endure the cold, they delight most in the East and South ; as in India, and some places of Africa. And before the dayes of *Alexander Magnus* , these vvere never any in Europe: but vvhen he fought against * *Porus* King of India, he became master of many : and hovv bravely they fought at the first for their masters, and received many vvounds, *Curtius* hath related.

*Plin. lib. 8. cap. 11.

*Curt. lib. 8.

These Indian *Elephants* are most commonly * nine cubits high, and five cubits broad; and in Africa they be about eleven foot high, and of bignesse proportionable to their height.

*Topsel.

*And in *Pegu* the King hath many; it being part of his royall title, *King of the White Elephants.* See Mr. *Purch.* in his Pilgr. of Asia, *lib.* 5.

Their colour is for the most part mouse-coloured, or black; and yet there was * once one in Ethiopia, all white,

as

as Mr *Topsell* relateth. They have a skinne so hard (excepting on their belly) that it is a very hard matter, and in a manner impossible, to pierce it vvith any svvord spear, or iron. It hath on it very fevv hairs, and is very full of chaps or crevises, in vvhich there is such a savour as invites the flies to a continuall feast: hovvbeit they pay dearly for their cheer; for although the *Elephant* cannot make use of his tail to drive them away, yet by shrinking of himself close together, he incloseth the flies vvithin the chaps, and so killeth them. He hath a long trunked nose, mightie teeth, foure vvhereof be vvithin his mouth serving to grind his meat, and tvvo hang forth; as aftervvards shall be shevved. He hath a tail slender and short, and legs of an infinite strength; his head is very great, so that a mans head may as easily be thrust into it, as his finger into the mouth of a dog: but yet his eares and eyes are not equivalent to the residue of his other parts: for his eares are small, and their matter like to the vvings of a Bat or Dragon; and some (bred in some places) have no eares at all. Their eyes likevvise are like the eyes of svvine, but very red. Tvvo of their teeth (as I said) grovv farre out of their mouthes, one of vvhich they alvvayes keep sharp to revenge injuries and defend themselves, and the other is lesse sharp, being often used to root up plants and trees for their meat; and commonly they grovv out to the length of ten feet: this is that vvhich vve call Ivory, and of vvhich manie prettie things are cut by artists.

Munster reporteth how these beasts are taken; namely by the cunning cutting down of a tree, against which they use to lean and stay themselves. For this beast, *saith he, having fed till he is full, betaketh himself to rest and leaning to a tree he sleepeth, for he cannot bend his joynts as other beasts do; not because he wanteth joynts, but

*Munst. Cosmog.

but because his sinews are more strong, and closely knit his joynts together; or else because there is much flesh between the skinne and bones; or because his skinne is so crustie, like to armour, and unfit to bend. Now when the people perceive any such tree as is worn and made foul by the *Elephants* leaning against it, they come in the absence of the said beast, and cut it almost quite through, close by the ground; insomuch that being ready to fall, it cannot stand when the *Elephant* cometh to rest against it, but by giving way causeth him to fall together with it; and then he lieth helplesse upon the ground all the night with his belly upward, and not being able to bend his legs and arise he is caught in the morning by those who before had cut the tree with purpose to deceive him.

The way to catch Elephants.

The said Authour also mentions another way whereby they of India sometimes take and tame them. For there be *Elephants* (saith he) in India which be very wild and fierce, but they are easily made tame; namely thus. The people intending to catch them, compasse some clean place with a deep ditch of about foure or five furlongs in compasse, and in one place onely they make a bridge very strait and narrow, being the way to enter in: then they set three or foure female *Elephants* which they have already * tamed, and they themselves lie watching privily till the time that the wild *Elephants* come and passe over the bridge: then on the sudden do they * stop the passage, and afterward bring some of their strongest tame *Elephants* to fight with these wild ones thus inclosed: besides which, they do likewise punish them with hunger and lack of meat; and when they be wearied with fighting, they which are bold hardie fellows (by help of the tame *Elephants* to shelter them) will privily creep under their bellies and suddenly chain and fetter them. After this they move their tame *Elephants* again to

* These females are anointed with a certain oyl, which causeth the wild Elephant to follow them.

* Some say they are chased in, as is also the tame Elephant trained up on purpose for such huntings. *Pinch. of Asia, lib. 5.*

to beat the wild untill their fetters cast them to the ground, and then they yoke them to the necks of their tame ones, and lay chains upon them that thereby they may passe on quietly: and at last bringing them home, they fasten their legs and necks to a strong pillar, and so by hunger and societie tame them; teaching them at the last when they begin to feed them, to be obedient to their masters in such manner as best pleaseth them: and then they will grow so loving, gentle, mild, serviceable, and docil, as is indeed a wonder. And if by chance any of them shall happen through fury to kill his keeper, he will shew so much sorrow, and take it so heavily, that he abstaineth from his meat, and sometimes even pineth to death; like unto that Dolphin, which in the former day I mentioned, who using to carry a boy upon his back, one day by mere accident hapned to kill him with one of his prickles, not closely couched, before the lad was mounted on his watery steed.

The little mouse is sometimes offensive to this beast, and will strive to run into the trunk of his nose; neither can he endure to eat more of his meat if he see but a mouse runne over it.

The mouse is offensive to the Elephant.

But above all, he hath two fierce enemies; *viz.* the *Dragon*, and the admired great *Rhinoceros*, who coming to fight with the *Elephant*, first whetteth his horn growing upon his snout, and then grappling close, he woundeth the *Elephant* into his belly; for elsewhere the force of his fury cannot enter. *Plin. lib.* 8. *cap.* 20.

And as for the *Dragon*, he likewise fighteth furiously, because his delight is to suck the bloud of the *Elephant*, which is cooling to his hot nature: but drinking too largely of it, (as he will do if he can) down falls the *Elephant* for lack of bloud, and down likewise falls the *Dragon*, because he hath sucked too much: and so both die striving together. *Ibid. cap.* 12. or, as * some say, the *Elephant*

*Munst.

phant dying falls upon the Dragon, and so kills his foe who killed him.

And in this fight the Dragon deals most cunningly: for first he sitteth watching upon a tree, and when the *Elephant* is come near unto that place, he suddenly skips and cleaves round about him: and if then the *Elephant* begin to beat him off against a rock or tree, he claspeth close about his legges, and seldome doth the combate cease without the death of both the fighters. A fit embleme this, of those who fall whilest they suck the bloud of others, and perish in such gains as are purchased by the harms of those whom they strive to subvert.

An embleme from the Elephant.

Moreover, the *Elephants* have such a kind of modestie and shamefastnesse, that the male never covereth the female but in secret; and this never but once in two years; and that, when the male is five years old, and the female ten. From whence, * *Geminianus* gathers this instruction. By this example (saith he) men are taught honestly to use the acts belonging to their conjugall or matrimoniall estate, both according to the place and time. *Arise and let us pray* (saith young Tobias to his wife) *that God would have pitie on us.* And in praying he likewise said, *I take her not for lust, but uprightly: therefore mercifully ordain, that we may become aged together. And she said with him, Amen.* Of which carefull continence, *Geminianus* gives this reason why it ought to be in us; because we are children of the light, and may * not do as the heathens who know not God. Whereupon * S. *Augustine* saith, that they commit adulterie with their wives, who in the use of wedlock have neither regard of seemlinesse nor honestie. And *Hierome* likewise makes this assertion, that nothing is more shamelesse then to make a strumpet of a wife: meaning when they turn the remedie into a disease, through a lustfull

The marriage bed must not be abused.

*Gemin. lib. 5. cap. 60.

Tobit 8. 4, 7, 8.

*Ezek. 8. 6. and 22. 10. Levit. 18. 19.

*See Mr Pok. in his *Aurea Catena.*

lustfull, immodest, and immoderate use of the marriage bed.

Furthermore, the Elephants are long-lived, they have great pleasure in good water, are very impatient of cold, and many of them live * almost 200 years.

*Munst.

Also there is one singular propertie yet more to be observed in them, *viz.* that even the wild ones living in deserts will direct and defend strangers and travellers. For if an Elephant shall find a man wandering in his way; first of all, that he may not be affrighted, the Elephant goeth a little wide out of the path and standeth still: then by little and little going before him, he shews him the way; and if a Dragon chance to meet this man thus travelling, the Elephant then opposeth himself to the Dragon, and powerfully defendeth the helplesse man who is not able to defend himself. So ought it to be chiefly amongst great men, and those who are mighty; they should not injure strangers and travellers (as many do) when they come into their territories, but rather by themselves, or theirs they should direct and succour them from the hurts and harms of evil men.

A pattern for great men.

Gemin. lib. 5. cap. 96.

The *Rhinoceros* is a beast every way admirable, both for the outward shape, quantitie, and greatnesse, and also for the inward courage, disposition, and mildnesse. For this beast is next to the Elephant, every way as strange, and in a manner exceeding him, unlesse it be in his quantitie or height of stature: for although he may be as long, or perhaps longer then an Elephant, yet he is not so tall, neither are his legges so long; and for the length, it must be a large *Rhinoceros* which can measure with the Elephant, for ordinarily the Elephant exceedeth, according to the testimonie of *Strabo* alledged by Mr *Topsell*.

The Rhinoceros.

In the * kingdome of *Bengala* great numbers of these beasts may be found: their colour is like the rinde or bark

*Purch. 5 book of *Asia*.

bark of a box-tree; their skinne upon the upper part is all wrinkled, and of such firmnesse and hardnesse that no dart is able to pierce it; and being wrinkled, it appeareth as if they were armed with shields, or set over with scales, which go also down along their legs to the very hoofs which are parted into foure distinct claws. Moreover, upon the nose of this beast there groweth a hard and sharp horn, crooking a little towards the crown of his head, but not so high; it is flat and not round, and so sharp and strong that it will pierce through things of exceeding hardnesse: and from hence it is that he is called a *Rhinoceros* in the Greek; by which word is signified a * *Nose-horned* beast. He is headed somewhat like to a wild Boar, and hath again another horn growing upon his withers, but it is a small one. The manner of his fight with the Elephant I have alreadie mentioned: and as for his horn, teeth, flesh, bloud, claws, and whatsoever he hath without and within his bodie, it is good against poyson, and (as * Authours write) is much accounted of throughout all India. The reason of which virtue is thought to proceed from the soveraigne powers which are in those herbs that *Bengala* yieldeth; for in other places they ate nothing so precious. Some have thought this to be the right Unicorn: but of that phancie see more, as followeth.

* Topsell.

Purch. ibid. ex Linscot.

The Unicorn.

Monoceros is a beast with one horn, called therefore by the name of an *Unicorn*: and albeit there be many horned beasts which may improperly be called Unicorns, yet that which is the right Unicorn indeed, is like unto a colt of two years and a half old, which hath naturally but one horn, and that a very rich one, which groweth out of the middle of his forehead; being a horn of such virtue as is in no beasts horn besides: which whilest some have gone about to denie, they have secretly blinded the eyes of the world from their full view of the greatnesse of Gods great works. For were it not said that the horn were excellent

horn were excellent and of surpassing power, I perswade my self it would never be doubted whether there were an Unicorn or no. But that there is such a peculiar beast, the Scripture, both in Deuteronomie, Isaiah, Job, and the book of Psalmes, doth bear us witnesse: In all which places how do Expositours translate the originall word, but thus, *Unicornis*, or *Monoceros*, which in English is an *Unicorn*?

Deut. 33. 17. Isai. 34. 7. Job 39. 9. Psalm. 92. 10.

And again, it is the testimonie of *Ludovicus Vertomannus*, alledged by *Gesner*, *Topsell*, and others, that he himself saw a couple of the true Unicorns at *Mecha* in Arabia: one whereof had a horn of three cubits, being of the bignesse of a colt two years and an halfold; the other was much lesse, and his horn shorter, about a spanne long, for he was but young: and both these were sent to the Sultan of *Mecha*, for a rare present, by the King of Ethiopia, who ever desireth to be in league with the said Sultan, thinking nothing too dear to maintain his amitie. And certainly he could not send him a gift more welcome, especially this being a beast so rare and seldome seen; which may be, in regard that it is a creature delighting in nothing more then in a remote and solitarie life.

The colour of these thus sent was like a weasel-coloured Horse; the head like the head of a Hart; the neck not very long, and the mane growing all on one side; their legs slender and lean, like the legs of an hind; the hoofs on the forefeet cloven, and the hinder legges somewhat shaggie. The nearest (of any beast better known) is the Indian Asse, and Indian Horse; excepting that their hoofs are whole and not cloven, and their colour somewhat differing: for there is a horn grows out between their two eyes, like to the true Unicorn. By which it appeareth that of Unicorns there is one principall kind onely; the rest are lesse principall, and subordinate

dinate to him whose horn is the strongest, sharpest, and of the greatest virtue. For in granting more kinds then one, I do not understand every beast with one horn; but onely such *Monocerots* as have in their horns virtue against poison: like unto those horses of India mentioned but even now, and of which Mr *Topsell* writeth that they have Harts heads, and one horn, of which their Kings & Princes make cups to drink their drink against poison, finding a great preservative to be in the said horn. *Munster* saith that the King of Ethiopia hath some store of these beasts; and Mr *Topsell* nameth two kingdomes in India (the one called *Niem*, the other *Lamber*): which be likewise stored with them.

A description of the Unicorns horn.

Moreover concerning the horn, it is neither light nor hollow, nor yet smooth like other horns, but hard as iron, rough as any file, revolved into many plaits, sharper then any dart, straight and not crooked, and every where black, except at the top or point. It hath many soveraigne virtues, and with an admirable dexteritie expelleth poison: insomuch that being put upon a table furnished with many junkets and banqueting dishes, it will quickly descrie whether there be any poison or venime amongst them; for if there be, then presently the horn is covered with a kind of sweat or dew. And (as it is reported) when this beast cometh to drink, he first dippeth his horn in the water, that thereby he may drive away the poison when venimous beasts have drunk before him.

How hunters take them.

And again I find it recorded that the Indian and Ethiopian hunters catch of those Unicorns which be in their countrey, after this manner. They take a goodly strong and beautifull young man, whom they clothe in the apparell of a woman, besetting him with divers flowers and odoriferous spices, setting him where the Unicorns use to come; and when they see this young man

man, whom they take to be a woman, they come very lovingly and lay their heads down in his lap: (for above all creatures they do great reverence to virgins and young maids)and then the hunters having notice given them, suddenly come, and finding him asleep, they will deal so with him, as that before he goeth, he must leave his horn behind him.

These, and many other things more, concerning this beast may be read in the large writings of *Gesner* and *Topsell*, whither I would wish the more inquisitive to have recourse.

The Lion.

Africa breedeth many *Lions*, and the colder the place is, the gentler they be: and in time of their coupling, eight or ten will follow one female, whereupon arise very terrible and bloudie battels among them. They engender backward; and so doth the Camel, Elephant, Rhinoceros, Ounce, and Tiger. They spare women rather then men, and prey not at all on infants, except in case of much hunger: and albeit the Lion be a fierce and cruell beast, yet he is said to shew great clemencie to the humble and such as prostrate themselves submissively before him; which he will the sooner do vvhen he hath lately filled his bellie vvith a former prey. The male useth not to feed vvith the female, but either of them apart by themselves. The Lionesse or She-lion is the fiercest, and alwayes the most cruell. Their tail is a token of their invvard meaning: for if it stirreth not, he is gentle and peaceable; but moving, he is angry. These beasts vvill keep revenge in mind a long vvhile, either against man or beast that hath hurt them. And in like manner they vvill as long be mindfull of a benefit, and do their best to make requitall, as is famous by that storie of *Androdus* who was slave to a senatour of Rome; and one named *Mentor*, a man of *Syracusa*, upon whom a Lion fawned to have him help his diseased foot.

A storie of a Lion.

For,

For, concerning the first; when *Androdus* fled from his master by reason of some hard usage that he received at his hands, by chance he happened to take up his lodging in a cave; which (unknown to him) was a Lions denne: where when he had been a while, not long before night the Lion came home from hunting, and having gotten an hurt upon his foot he no sooner espied the trembling man in this fearfull place, but he cometh gently unto him, stretching forth his foot, and making mone as though he desired help. The poore slave at the first expected nothing but death, neither did he think of any thing more then to have his sepulchre in the Lions bellie; but at the last perceiving what the matter was, he took the Lion by his paw, searched the wound, pulled out a thorn, bound up his foot and gave him ease: which kind office being performed, was first of all requited with a daily portion of provision which the Lion would bring in for his guest; and he poore helplesse man would rost it in the sunne as well as he could, and then eat it. But being wearie of this kind of diet, and as wearie of his solitarie life, he went away; for whose absence, the Lion (as himself could heare) made great mourning and lamentation. And see how it happened; this man did no sooner depart then he was taken by some whom his master sent to seek him; and then (alas) there is no way for him but one; die he must. Neither shall his death be other then a tearing in pieces by cruell beasts: for the Romanes had a custome to sit in their theaters and behold such bloudie games, and direfull pastimes; and therefore they would catch and keep beasts on purpose. But it fortuned that amongst other beasts taken this Lion was one, who being brought into the theater greedily rent in pieces such as were thrown unto him: yet when his old guests turn came, he forgot his furie and turned it into fawning, by which the poore slave

perceived

perceived what Lion it was, and thereupon gathered up his spirits, renewing again his old acquaintance with his former friend, even to the admiration of all the beholders. And the matter being known and related to them, he had not onely pardon for his life, but the Lion also was bestowed on him to wait upon him. *Elianus* reports this storie, and so doth *Aulus Gellius* in his *Attick nights. Hic est Leo hospes hominis; hic est homo medicus Leonis*, was that which the people would say when they saw him leade along his Lion through the streets: *Here goeth* (say they) *the Lion which was the mans hoast; and there is the man who was the Lions Physician.*

And to shew that the Lion delighteth not to kill his prey before he be readie to eat it, appeareth by another storie which I find related by Mr *Topsell*, in his historie of foure-footed beasts.

Another storie of a Lion.

A certain English man being turned Moor, and living in Barbarie, was told of a Lion which lay lurking not farre off; and he, to shew his valour, being half drunk, would needs undertake to go and kill him in the place where he was: whereupon he armed himself with a sword, dagger, and musket; having also a long large knife about him. And when he came to the place where the Lion was, that he might shew himself valorous, he would not kill him as he lay asleep, but toucheth him with the end of his musket that he might awake: which being performed, the beast suddenly mounted up and eagerly sets upon this fool-hardie champion, throwing him presently down to the ground: whereupon he could think of no other but a speedie execution. But seeing the Lions bellie was lately filled with a former prey, he forbeareth to kill him; onely he standeth over him and keeps him down with his paws, intending so to hold him untill he had a stomach to prey upon him. But in the mean time, this champion studying how to acquit

himself, between hope and fear, draws out his long barbarian knife (for he had his hands at libertie) and with it he wounds the Lion two or three times : but he, desirous to possesse his prey against his need, never regarded from whence the wounds came, and thereupon he falls at the last fainting to the ground, and so dying delivers his prisoner against his will, who now might triumph in a conquest that was altogether beyond either hope or expectation.

These creatures delight much to feed on Camels flesh, and on the flesh of Apes : howbeit when they eat Apes, it is more for * Physick then for food : and sometimes they will catch the young Elephants. Neither do they drink often or overmuch; and having eaten to satietie, they use to fast * three dayes before they feed again. Their bones (saith *Munster*) be sound and not hollow, insomuch that some affirm fire may be struck out of them as from a flint : and sometimes being too fiercely exasperated to anger, they are in such a heat, that it even burns them up, and kills them. So have I seen some very powerfull, and exquisite in many things, and yet but slaves to their own passions ; ruling others but not able to command themselves : although there be few but know, that it is a * greater point of valour to subdue a mans self, then to conquer a strong and mightie citie.

Ælian. var. Hist. lib. 1.

Munst.

He is truly valiant that can overcome himself.

Fortior est qui se quàm qui fortissima vincit mœnia.

What *Plinie* hath written of this beast may be seen at large in the sixteenth chapter of his eighth book ; to whom, and others, I referre such as desire more.

The Tiger.

Tigers, like lions, are bred in the East, South, and hot countreys, because their generation desireth an abundance of heat. It is a beast of a wonderfull swiftnesse: and in the proportion of his bodie he is like to the * Lionesse, footed like a Cat, and spotted like a Panther, excepting that the spots be long and all of a colour. Generally they be cruell, sharp, ravenous, and never so tained but

* And note that his Mustachios are holden for mortall poison; causing men to die mad if they be given in meat. *Purch.*

but sometimes they return to their former natures: but above all, in the time of their lust, or when they be robbed of their young, they are most raging and furious. *Plinie hath described the manner how the hunters get away their whelps very commonly. They come upon horseback, and finding the old Tigers from home, they take up their young ones and poste away as fast as they can; and on the sudden they find themselves pursued, wherefore when the old one cometh neat them, they let fall one of her whelps on purpose, that whilest she is carrying that to her nest, they may escape securely with the rest. And sometimes they make round spheres of *glasse which they cast before her when she cometh, and thinking (by reason of her own shadow) that she seeth her young ones there, she rolleth it to her denne, where she breaketh it with her claws, and finding her self deluded runneth after the hunters again, by which time they are gone too farre for her to find.

*Plin. lib. 8 cap. 18.

*Munster, Topsell.

There is an *herb near the river *Ganges*, growing like *Buglosse*, the juice whereof is such that if it be poured into the mouth of their dennes, they dare not come forth, but will lie howling there till they die.

*Topsell.

The *Panther* is a beast little differing from a *Leopard* or *Libbard*; *some think they differ in nothing but in sex. In Greek the generall name is *Panther*; the speciall names, *Pardalis* and *Pardalis*. *Pardalis* is taken for the male, & *Pardalis* for the female. And in Latine it is called *Pardus* & *Panthera*; where it must be again observed that *Pardus* signifieth the male Panther, and *Panthera* the female. Neither is the difference between the Leopard and Panther onely in sex, but rather in respect of a mixe and simple generation: for there is no Leopard or Libbard, but such as is begotten between the Lion and the Panther, or the Panther and the Lionesse.

The Panther.

*Plin. lib. 8. cap. 17.

How the Leopard is begotten.

This is a beast which hath varietie of colours, a sweet breath,

breath, and is very fierce and wild, insomuch that some have therefore called him a *Dog-wolfe*; and yet being full, hee is gentle enough. He sleepeth three dayes (saith *Munster*) and after the third day he vvasheth himself and cryeth out, and vvith a svveet savour vvhich cometh from his breath, he gathereth the vvild beasts together, being led by the smell: and then (saith *Plinie*) doth he hide his head very cunningly, lest his looks should affright them; vvhereupon, vvhilest they gaze upon him, he catcheth his prey of which he pleaseth. So have I knovvn some hide their ill meanings vvith fair & svveet-breathed vvords; having hony in their mouthes, but gall in their hearts; and a direfull intent cruelly to hurt vvhen they seem, most of all to please. For sugred speeches vvill catch the credulous; neither is all gold that fairly glisters.

An embleme from the Panther, concerning fair tongues and false hearts.

Novv the reason vvhy these beasts have such a svveet breath, I take to be in regard that they are so much delighted vvith all kind of spices and daintie aromaticall trees: insomuch that (as* some affirm) they vvill go many hundred miles in time of the yeare vvhen these things are in season; and all for the love they bear to them. But above all, their chief delight is in the gumme of camphorie, vvatching that tree very carefully, to the end they may preserve it for their ovvn use.

* Topsell.

The Camel.

Of *Camels* there be chiefly three sorts: the first called *Hugian*, of great stature and strength, able to carrie a *thousand pound weight: the second lesse, with two bunches on the back, and sometimes one upon the breast; these are called *Bechati*, are found onely in Asia, & are fit both for carriage, and to ride on. The third sort is meagre & small, not used to burdens, yet able to travell above an hundred miles in one day: this kind they call *Rugubill*.

*Purch.

The Arabian & Bactrian Camels, although they vvant horns, yet they have* teeth but on one side. And of all the sorts, their necks are long & nimble, by which the whole bodie

*Plin. lib. 8. cap. 18.

bodie, is much relieved, seeing it can reach to most parts; their heads are small, and feet fleshie, in vvhich regard they use to be shod vvith leather for fear of graveling; I mean such as are tame and made serviceable. They love grasse, especially the blades of barley; and vvhen they drink, the vvater must not be clear but muddie. The surname therefore of the Camel, is *Trouble-bank*; for they vvill * mud the vvater vvith their feet, othervvise they take no delight to drink it. So have I seen some, never better pleased then vvhen they trouble the clear fountains of justice and pure doctrine, vvith the muddie streams of injustice and errour. Or some, never better cheered then vvhen they may drink deeply of the dirtie puddles of vworldly vvealth, little regarding the svveet taste of the vvater of life, vvhich is a clear river running from the throne of God and the Lambe, Rev. 22. And as for the bunch upon the Camels back, the Scripture doth thereby expresse the svvelling pride and confidence of rich worldly men, who as hardly enter into the kingdome of God, as the Camel vvith his bunched back can go through the * eye of a needle.

*Plin. ibid.

An embleme from the Camel, concerning those who preferre earth before heaven.

*Matth. 19. 24.

The Horse and the Camel are great adversaries: and vvith his very sight and strong smell, the horse is terrified. *Cyrus* therefore being excelled by the Babylonians in horsemanship, used this stratagem of the Camels.

The Horse and Camel great enemies.

And as for our fine stuffes, as grogeram, and chamblet, they be made of Camels hair, as some affirm: as also there is a courser hairie cloth to be made of the worst of this hair, such as was that garment vvorn by John Baptist in the vvildernesse.

Stuffes made of Camels hair.

And of the Camels this one propertie more; when their masters load them, they vvill bovve themselves, and stoup dovvn to the very ground vvith their knees, patiently enduring to take up their burden. So have I seen some, as vvillingly humbled under the crosse, and as patiently

A lesson of patience and humilitie taught by the Camel.

stouping to take it up, and followv their master Christ vvho vvent before them. For it is a true rule, that God can and doth love his children vvell, although he make no vvantons of them.

The Dromedarie. Moreover the *Dromedary* is a kind of Camel, but lesse, and farre more svvift.

The Cameleopard. And as for the *Cameleopardus*, he is begotten by a mixt generation betvveen the Camel, and Leopard or Panther.

The Hyæna *Lib. 8. cap. 30. The *Hyæna*, as it is described by * *Plinie*, is a beast vvhose neck hath no joynt, and therefore he stirres not his neck but vvith bending about his vvhole body. He vvill imitate humane voice, and dravving near to the sheep-coats, having heard the name of some of the shepherds, he vvill call him, and vvhen he comes, devoure him. His eyes have many colours; and the touch of his shadow makes a dog not able to bark. And (as the Magicians vvould make us believe) this beast hath the povver of incantation: they therefore tell many strange things vvhich they be able to do.

Topsell. Neither is this any other then the common or vulgar *Hyæna*, vvhich is likevvise called *Lupus vespertinus a wolf of the night*, being in quantitie of body very like a Wolf, but much more rough in his hair, and bristled all along his back like a horses mane, the middle vvhereof is somevvhat crooked. His colour is yellovvish, but speckled on the sides vvith blevv spots.

Idem, pag. 439. The second kind is called *Papio* or *Dabuh*, bigger and rougher then the former, vvith feet something like to a mans hand. They breed much about Cesarea; and their custome is, being gathered together, for one of them to go before his company singing and hovvling, and all the rest ansvvering him vvith a kind of correspondent tune; vvhose voices are so shrill and sounding, that although they be remote and farre off, men may heare them as if they

they vvere hard by: and vvhen one of them is slain, the residue flock about his carcase, hovvling as if they should make funerall lamentations for the dead. They sometimes, being compelled by hunger, vvill search into the silent graves of dead men.

The third kind is the *Corcuta*, and this happeneth vvhen the Lionesse and the Hyæna do ingender together. *The Corcuta.*

The fourth is *Mantichora*; he is bred among the Indians, having a treble rovv of teeth beneath and above, vvith a broad face fashioned like to the face of a man, a beard both on his chin and upper lip; his eyes are gray, and his colour red, and in the shape of his body and legs like to a Lion. His tail is long and slender, armed at the end vvith sharp quils, vvith vvhich he vvoundeth the hunters vvhen they set upon him; and this is strange, that the quils being darted off do presently grovv again. And as for his chief delight, it is to eat mans flesh. *The Mantichora.*

The *Zebra* is a beast vvhich amongst * all creatures both for beautie and comelinesse is admirably pleasing. He resembles a horse of exquisite composition, but not altogether so svvift, all overlaid vvith partie-coloured laces and gards, from head to tail. In Africa they abound, and live in great herds together. *Zebra.* *Purch. lib. of Africa, cap. 1.

In the countrey of Sardinia there is a certain beast vvhich they call *Muflo*, the like vvhereof (as * some affirm) is not in all Europe. It hath a skinne and hairs like unto a Deer or Hart, crooked horns like unto a Ramme, vvhich bend backvvard about the eares. In bignesse he may be compared to a Buck: he feedeth onely upon grasse and herbs, and keepeth most about mountains, is very svvift in running, and his flesh is very good to be eaten. *Muflo.* *Munst. Cos. Epit.

In Virginia there is a beast called *Ovassom*, vvhich hath a head like a Svvine, a tail like a Rat, as big as a Cat, *The Ovassom.*

Cat, and hath under his belly a bag, wherein they carrie their young. *Purch.*

Virginia Dogs, Wolves, Foxes, &c.

Moreover I find in the said Authour, that their Dogs in that countrey bark not, their Wolves are not much bigger then our Foxes, and their Foxes like our silver-haired Conies, and of a differing smell from ours.

The Wolf.

The *Wolf* is a ravenous and devouring beast, and rightly surnamed *Spoil-park*; and those of the common sort have grizled hairs, being white under the belly, a great head, and armed with big and long teeth, sparkling eyes, and short prickt eares; and for his feet, they be something like to the feet of a Lion. He is therefore called *Lupus* from *Leopes*; *quia pedem quasi pedes Leonis habet.*

Where these creatures live, the people are much infested with them: they will sometimes steal from their folds abroad, and sometimes do them mischief at home. When they come to the sheepfolds, they observe which way the * wind bloweth, and then they come marching against it, that thereby they may the better deceive the shepherd and his dogs. And when they prey upon Goats, they * hide themselves under the leaves of * trees that they may the more easily obtain their desire. When they catch little children, it is said that they will play with them for a while (as the cat playes with the mouse) and at the last devour them.

*Gemin. lib. 5. c. 39.

*Ibid.

*Or else come with the green leaves and small boughs of Osiers, &c.

Plinie and *Olaus Magnus* write, that Egypt and Africa bring forth but small Wolves in respect of those which are in the Northern parts of the world: and as the Elephant is impatient of cold, so these beasts do as much detest heat. And again there be certain mountains which part the kingdomes of *Smetia* and *Norway*, upon which live whole herds of white Wolves.

Plin. lib. 8. cap. 22.

Ola. Mag. lib. 18

*Some say that if the heart of a Wolf be kept dry, it will render a most fragrant or sweet smell; and in the bladder

* Topsell.

bladder of a Wolf is a certain stone of a saffron or hony colour, which inwardly containeth as it were certain weak shining starres. But this (me thinks) is strange. The Ravens are in perpetuall enmitie with Wolves, and the antipathie of their natures is so violent, that if a Raven eat of the carcase of a beast which the Wolf hath either killed or formerly tasted of, she presently *dieth : and again it is reported that when a Wolf espieth a single passenger travelling by the way, if he thinks himself not able to set upon him, he will make such a piteous howling that his companions suddenly come to help him.

**Ibid.*

Romulus and *Remus* were said to be nursed by a she-Wolf: but *Lupa*, signifying *a devouring Harlot*, may rather be applyed to *Laurentia* the wife of *Faustulus*, who had played the harlot with certain shepherds.

Romulus & Remus not nursed by a Wolf.

Wolves have no societie but with beasts of their own kind ; and above all creatures, they and dogs are most subject to madnesse; the reason of which is, because their bodies are cholerick, and their brains increase and decrease with the moon.

And as for their severall kinds, see more in *Gesner*, *Topsell*, *Olaus Magnus*, and such others.

The Fox.

Vulpes, the *Fox*, is a subtill craftie creature. They differ in colour according to the climate wherein they be bred, and sometimes also in quantitie. The urine of this beast falling upon any herb or grasse, drieth it up, and causeth it to wither. His fat or grease is good against the cramp or gout : and so also is his skinne, if it be wrapped about the grieved place ; testified by *Olaus Magnus* in the eighteenth book of his Northern historie.

The subtilties of the Fox.

Moreover, concerning the subtilties of this beast, they be in a manner infinite. By putting his tail into the water he will catch an abundance of crabs and lobsters at his

his pleasure; for they take great delight to hang and enwrap themselves into such brushie stuffe, and he hath as great delight to fish them out.

And again, when cold, snow, and hunger shall oppresse him, coming near some farm or mansion-house, he feigneth a kind of barking like a dogge, that thereby the houshold beasts may more confidently keep themselves without feare, being often used to the barking of a dogge: and so having gotten himself near unto his prey, he will lie upon his back with his belly upwards, mouth open, tongue out, and every way seeming as if he were dead; then the hens, or geese, or what else is fit for him, are suddenly surprised and cunningly caught, whilest they little dreamed of such a subtiltie.

Sometimes again he will roll himself in red earth, and besmearing himself with it as if he were bloudie, he will again lie on the ground, verily seeming as if he were dead, by means whereof he inviteth the fowls to come and prey upon him: but he deceiveth them in his craftie wilinesse; and being deceived, they are taken.

Also, he sometimes escapeth the danger of doggs by a counterfeit barking, by which he feigneth himself to be one of their kind. And by his subtiltie he escapeth from the snares, and that not seldome: for if he be taken by the foot & cannot free himself, he will prostrate himself upon the ground, and shew no appearance either of life or breath: insomuch that when he cometh who set the snare, and findeth him in this posture, he will suppose him to be no other then he seemeth; and then loosing the snare without any thought that he should escape, he suddenly riseth and runnes away. The like was credibly reported to me of a Fox, creeping into a mans house at a little hole, who filling himself too full, knew not how to get out; whereupon in the morning he was found as dead: the man kicks him about the house,

house, and at the last throws him out of doores on the dunghill; where he was no sooner with joy arrived, but up he starts, and findes his legges as readie to carrie him as he was willing to escape.

Moreover, being hunted he will sometimes runne among a flock of sheep or goats, and get upon the back of some one or other of them, forcing that sheep or goat to runne; the rest follow, insomuch that the hunters are unwillingly compelled to call in their dogges, for fear they should seise upon, or harm the flocks.

And to rid himself from fleas, he hath this device, reported by *Olaus Magnus*. He takes in his mouth a little wisp of soft hay, with which he wrappeth a little hair; and coming to a river, he puts himself in, all but the head: then when the fleas are come up so high as his head, he sinketh lower, even till the hay in his mouth touch the water; by means whereof the fleas are driven thither: and being there, he lets the wisp go, and so clears himself. How the Fox catcheth fleas.

In like sort he * deceiveth the Hedge-hogge; for when the Hedge-hogge perceiveth the Fox coming to him, he rolleth himself together like a foot-ball, and so nothing appeareth outwards but his prickles, which the Fox cannot endure to take into his mouth, and therefore the craftie Fox, to compasse his desire, licketh gently the face and snout of the Hedge-hog, by that means bringing him to unfold himself again, and to stand upon his legges; which being done, he instantly devoureth him by poysoning him with the urine that he maketh upon the Hedge-hogges face. *Topsell.

He hath a trick likewise to * revenge himself upon the Brock or Badger; for there is great enmitie between them: the Fox therefore finding the Badger gone from home, for the spite he bears him, will come and with *Gemin. lib. 5. cap 31.

with his pisse defile the Badgers denne: whereupon he is forced to forsake it and seek a new.

A cunning trick of a tame Fox.

But was not that a cunning tame Fox who would stand all the day quietly chained according to his masters mind, and when night came would slip his collar, and go out to kill the neighbours geese; and before morning come again, and put his head within his collar, presenting himself to his master, as if he had never gone out?

An embleme from the Fox and her young, concerning false friends.

Moreover, the young whelps of the Fox, when they can find no more milk in the paps of their damme, will bite them with their teeth, and rend and tear them, reputing them as strangers. So have I seen fraudulent friends, who will love no longer then you feed them. *Tam diu stat, quamdiu utilitas durat*, saith* one: *They abide so long as there is profit for them*: according to that of *Seneca*, *Qui utilitatis causâ assumptus fuerit, tã diu placebit, quamdiu utilis erit.* And indeed it is too true, as common experience beareth witnesse.

*Idem.

The Lynx.

Lynx is a spotted beast much like a Wolf; it hath a more piercing sight then any creature in the world. And of Lynxes it is said there be two kinds; the one a greater, which hunteth Harts and great beasts; the other a smaller, which hunteth Wild-cats and Hares. Of this last kind *Olaus Magnus* writeth, that there be some of them in the Northern woods of *Swetia* and *Norway*: and generally there be many countreys both in Europe, Asia, and Africa, which abound with both kinds. But above all, those which are bred in Europe are commended for the best spotted: and in Europe, those of *Scotland* and *Swetia* are* most beautifull.

*Topsel. ex Ballon.

He is a beast as ravening as a Wolf, but more crafte; and, as he findes his opportunitie, will prey upon man as well as beast. Howbeit, in the summer time they be very weak, and live faintly among the rocks, never straying farre from home, hurting no man untill the Autumne.

tumne. And for the manner of catching their prey, most commonly it is thus; They vvill get up into trees, and there lie in wait for their bootie untill they espie it under the boughs, and then suddenly do they leap into the neck of it, vvhether it be*a man or great beast; vvherein they fix their clavvs so fast, that no violence can shake them off: and then vvith the sharpnesse of their teeth, they first bite into the skull, and eat out the brains.

*Id. m ibid.

The ancient Pagans dedicated this beast to Bacchus, feigning that vvhen he triumphed in his chariot of vine-branches, he vvas dravvn by Tygers and Lynxes.

They love their young ones very entirelie: and that some should think they are bred betvveen a Wolf and a Hind, is utterly vvithout reason, seeing there is such hostilitie and adverse disposition in their natures.

It is reported that vvhen they be taken they vvill shed forth many tears, and vveep very pitifully: and their urine congealed, turneth it self into a precious stone, vvhich for brightnesse resembleth the Amber being a stone of sovereigne virtue: and they, knovving their urine to be thus beneficiall, rather then man should find it, they use to hide it in the earth or sand; and yet they are deceived: for (as * *Plinie* vvriteth) it is there soonest of all converted into a stone, and not seldome found. Which, by * *Geminianus*, is rightly made an emblème of the envious man, vvho vvill not onely endeavour to do hurt, but be heartily sorie if by chance it be his hap to do any one good.

An emblème of envie.

*Lib. 37 cap. 3.

*Lib. 5 cap. 71.

The *Beaver* is a beast of a very hot nature, living both in the vvater and on the land, and differeth from an Otter onely in the tail. Germanie, Spain, France, Italy, and divers other places abound vvith these beasts. His stones are much used in Physick, the hunters therefore catch him that they may geld him; vvhereupon he is called *Castor*: for it is but a fable to say he biteth out his ovvn

The Beaver.

own stones when they come to take him; for indeed they lie too close in his bodie to be pulled out with his teeth. These stones, and genitalls, the Physicians call *Castoreum*: and as for his skinne and hairs, their use is also excellent.

The Otter. The *Otter* is something lesse then a Beaver, and may well be called *A dog of the water*: and (as Mr *Topsell* thinketh) is, without all doubt, a kind of Beaver. It is a sharp-biting beast, never letting his hold go untill he make the bones to crack between his teeth: and as for the females, they use to give suck to their whelps, untill they be almost as big as themselves.

Olaus Magnus calleth them * *Lutræ, quadrato ore mordaces*; and telleth us that some great men in Suetia keep tame Otters in their houses, which are so tractable that the cook of the kitchin can send them into the fish-ponds to bring him fish for his masters dinner.

*Lib. 18.

A medicine for the megrim, and palsie.

Their skinnes (besides other uses) if they be worn in caps, or stocking-soles, are good and wholesome against the palsie, megrim, and other pains of the head. *Topsell.*

The Squirrell. *Sciurus*, the *Squirrell*, is a quick nimble creature which will skip from tree to tree with great facilitie. When she is out of her nest, her tail serveth to secure her both from shine and rain. Howbeit, it is sometimes a hurt unto her: for the hairs of it be so thick, that striving to swimme over a river, her tail is so laden with water, that sinking she drowneth. Wherefore nature hath taught her this prettie piece of policie; namely, to get upon a little peece of wood, which swimming wafts her securely over: and wanting a sail, her bushie tail set up and spread abroad, supplies the room of that defect.

Olaus Mag. lib.

*Plinie saith they have great foresight in the change of weather, and will therefore stop up the hole of their nest

*Plin. lib. 8 cap. 38.

nest on that side from whence the tempest is like to blow, opening a passage in the contrarie place, or side opposite to it. The like whereunto is affirmed of the Hedge-hog also.

Their skinnes are exceeding warm, and their tails profitable to make brushes; their flesh is tender, and in a manner comparable to the flesh of Kids or Conies; & yet not very wholesome, except the squirrell were a black one.

When this beast is hunted, she cannot be driven to the ground to creep into hedges, unlesse extremitie of faintnesse cause her so to do through an unwilling compulsion: for such (*saith one) is the stately mind of this little beast, that while her limbes and strength lasteth, she tarrieth and saveth her self in the tops of tall trees, disdaining to come down for every harm or hurt which she feeleth; knowing indeed her greatest danger to rest below, among the dogs and busie hunters. From whence may be gathered a perfect pattern for us, to be secured from all the wiles and hungrie chasings of the treacherous devil; namely that we keep above in the lofte palaces of heavenly meditations: for there is small securitie in things on earth; and greatest ought to be our fear of danger, when we leave to look and think of heaven.

*Topf. pag. 658.

An emblème from the hunted Squirrell, concerning the small securitie in things on earth.

But I come to another beast; which in *Topsells* historie is thus described. There is in the Newfound World farre into the South, a strange and terrible beast, which they of the countrey where it liveth, call a *Su*; so named because it liveth near the water, and *su* in their language signifieth *water*. It is a creature of a very deformed shape, monstrous presence, a great ravener, and altogether untameable. She hath a mightie great tail, which is brushie, fierce talons, and a cruell look. Now when hunters (for the desire of her skinne) shall set upon her, she flieth very swift, carrying

A strange beast called a Su.

carrying her young ones upon her back, and covereth them with her broad tail. And the hunter, not daring to encounter with her but by treacherie, is forced to this project; namely to dig great holes in the ground and cover them over with boughs, sticks, and earth: which he doth so weakly, that if the beast chance at any time to come upon it, she and her young ones fall down into the pit, where they have no way but one, they must be taken. But this cruell, untameable, impatient, violent, ravening, and bloudy beast, perceiving that her naturall strength cannot deliver her, first of all, to save her young ones (as she supposeth) she destroyeth them all with her own teeth, so that never any of them could be taken and tamed; and then howleth and roareth at the hunters who come about her; but now they need not fear her, she is secure enough: whereupon they use means, quickly to dispatch her, and by fatall blows to stop her mouth from bawling. Then they take off her skinne, and leave her carcase in the earth: and of what use her skinne is, I have not heard.

The Hedge-hog.

The *Hedge-hog* is a beast well known, about the bignesse of a conie, but like to a Swine; having her body beset with and compassed all over with sharp thorny hairs, or pricking bristles, which she setteth up or keepeth down at her pleasure: and by these she defendeth her self from those who seek her life; which is attributed to her as a kind of craft and wilinesse. Some therefore have likened a deceitfull man unto this beast, who turneth and windeth himself for all advantages, and is now this, then that, and sometimes neither this nor that.

An embleme from the Hedge-hog.

Between him and the *Serpent there is mortall hatred: for it is said that the serpent will seek out the hedge-hogs den, and then falleth upon him with purpose to kill him, but the Hedge-hog draweth himself up together round like

*Topf. pag. 279.

like a football, so that nothing appeareth but his thornie pricks: whereat the Serpent biteth in vain, for the more she laboureth to annoy the Hedge-hog, the more she is wounded and harmeth herself; howbeit the height of her mind, and hate of her heart be such, that they will not suffer her to let him go, till one or both parties be destroyed: yea it sometimes so happeneth, that the least creature hath the best successe, and gets the conquest. So have I seen some provoke others to their own ruine: for if proud minds and high spirits could alwayes have their wished ends, the low shrubs should never thrive, nor mean estates enjoy the sunne.

An emblème from the Serpent and Hedge-hog, concerning mean estates.

Moreover (as is reported) this beast altereth and changeth her nest according to the blowing of the North or Southern wind. So have I heard of those, whose care hath been to apply themselves unto the times, apt to turn with every wind, altering their judgements and opinions in time of persecution, from that which they held in time of peace and quiet: whereas a hardie souldier is never known but in a winter siege, nor a true Christian but in a fierie triall.

The Hedge-hog changeth his nest.

The emblème detecteth Time-servers, and unconstant Professours.

Next after the Hedge-hog I may mention the *Porcupine*, or *Porcuspine*, from *Porcus* and *spina*; so called, because he is, as it were, a thornie-hog, or another Hedge-hog something differing from the former: for the vulgar Hedge-hog is *Ericius sylvestris*, and the Porcupine *Ericius montanus*. This beast is usually bred in India and Africa, and brought up and down in Europe to be seen for money.

The Porcupine, or *Mountain Hedge-hog.*

The generall proportion of his bodie is like a Swines; and seldome is it that they be bigger then a pig of half a yeare old. But in the particular members there is some difference, as in his eares which are like to the eares of a Man, his mouth somewhat like to the mouth of a Hare, but with a longer slit, and with three of his

foreteeth in his upper jaw hanging out of his mouth: his two hinder feet are something like the feet of a Bear, and those before like the feet of a Badger; and in a word, his bodie is beset with certain sharp quills or prickles, which, when he is hunted, he can dart off either in the mouthes of the dogs, or legs of the hunters. And of these quills men make wholesome tooth-picks; for it is said that if we scrape our teeth with these, they will never be loose. *Topsell.*

The Armadill. *Armadillo* is a beast in India like unto a young pig, covered over with small shells like unto armour: it lives like a mole in the ground.

The Alborach. The *Alborach* is a fair white beast like an asse, frequent in the Turkish territories, upon which beast *Mahomet* was carried up to heaven; as the blasphemous Priests of that nation perswade the sillie pilgrims of *Mecha. Idem.*

The Hare. The *Hare* is a fearfull creature and well known to every one. *Gesner* describes her amply in his historie of beasts, as also *Topsell*, *Plinie*, *Olaus Magnus*, and such others. Now the cause of fear in this creature, is in regard that she hath no other arms to defend her from being taken, but her little prettie nimble legs and swift running. It is said that when they watch they shut their eyes, and when they sleep they open them; which how true it is, I know not: howbeit the Egyptians, when they would signifie an open and manifest matter, used to picture an Hare sleeping.

*Lib.8.cap. 55. *North. hist. lib. 18.

Moreover, it is easily seen that the Hare hath longer legs behind then before, and so runneth faster up the hill then down; contrary to almost any other beast, for they make more speed downward then up. Whereby (saith* one) may be signified, that whereas most men in the world go down the way which leadeth to destruction, he which is good, will imitate the watchfull Hare, and

*Willet on Levit.

and climbe up cheerfully the way to heaven: which was prefigured by ascending up to Sion, *the mountain of the Lord*, Psal. 24. 3.

And again, the Hare hath very long eares, is quick in hearing, but dull of sight; which, to applie it as an embleme, may be thus; The * eare, being the instrument of hearing, is *sensus doctrinæ, the sense of doctrine*, and gate to let in good instruction; but the eye, being the sense of seeing, is the instrument of delight and vanitie. Wherefore we should be swift to heare things for our instruction, and shut our eyes from beholding things that tend to vanitie.

An embleme from the Hare, concerning the waves to heave and to hell. Another.

*Idem ibid.

How to use our hearing and seeing.

The *Conie* is a beast near of kind to the Hare: in some countreys they * begin to breed being but six moneths old, but in England at a yeare old, and so continue bearing every moneth, or at the least seven times in one yeare. Their young are blind at the first, and (like whelps) see not untill they be nine dayes old; neither hath their damme any suck for them till she hath been six or seven houres with the male, or at the least she cannot suckle them for the desire that she hath to accompanie the buck, which if she be not presently permitted to do, she will have no propensitie any more untill 14 dayes after.

The Conie.

*Topsell.

The males will * kill the young ones, if they come at them, as the he-cat useth to do; and therefore it is thought that the females use to cover up their nests with earth, and keep them close untill they be ready to runne. Their flesh is * commendable, light of digestion, wholesome, cleanly, nourisheth temperately and firmly: and what commoditie a good warren of conies bringeth toward the keeping of a good house, men, who love hospitalitie know very well. Howbeit they have sometimes proved dangerous about cities and castles by undermining their walls: for (as *Plinie* writeth in the 29 chapter

*Markhams Meth.

*Haven of health, pag. 119.

of his eighth book) there was a town in Spain overthrown by the digging of conies; and one again in Thessalie destroyed by the casting of moles. It is not good therefore to let them have a freedome of breeding too near our houses for fear of damage. To conclude, *They use not to live very long, and chiefly they take delight in hard and sandie grounds which are drie; for they have no greater enemie then the wet: from whence it proceedeth, that their greatest infirmitie is rottennesse. And therefore for those who keep tame conies, *Markham* teacheth that they shall onely take the finest, sweetest, and driest hay that they can get, and mix it very well with the herb hare-thistle, and therewith feed their conies; which medicine will both cure and prevent the foresaid maladie. And note, that in India there is a little beast called a *Pig-conie*, with short round eares, and a bodie somewhat rounder and fuller then our conies.

*Mark. ibid.

The Ferret.

The *Ferret*, in Latine is called *Viverra, quasi vivens in terra*, as living in the earth, creeping into, and searching in the holes thereof; by which means they infest no creature more then the conie. This is a bold and audacious beast (though little) and an enemie to all other, except their own kind: and when they take a prey, their custome and manner is, onely to suck in the bloud as they bite it, and not to eat the flesh; and if at any time their prey shall be taken from them, they fall a squeaking and crying. Such (saith one) are the rich men of this world, who yell, and crie out, when they part with their riches; weeping and wailing for the losse of such things, as they have hunted after, with as much greedinesse as want of pitie: in whose commendation, I think, as much may be said, as was once by a preacher at the black funerall of an usurer; of whom there is this storie.

An emblème from the Ferret, concerning covetous rich men.

A storie of an usurer.

A great rich usurer, having purchased a mighty estate, was at the last sent for by death to leave the world: and lying

lying upon his bed, the Doctours and Physicians finding his sicknesse to be mortall, give him over. Then do his friends about him send for a Divine to come and comfort him; who willingly tells him of many comforts for his souls health, and amongst other things puts him in mind, of this, *viz.* That he had been a great purchaser upon earth, but now he must studie for another purchase, which was the kingdome of heaven. Now the usurer turning upon the other side, at the hearing of the word *purchase*, answered, *I will not give more then according to fifteen years for a purchase*, and so died. Afterwards, this gentleman preaching at his funerall, in the conclusion of his sermon said onely thus; *Brethren, it is now expected that I should say something concerning our brother here deceased: I will end it in few words, namely these: How he lived, you know; how he died, I know; and where his soul now is, God Almightie knows.*

The *Poul-cat*, or *Fitch*, in Latine is called *Putorius, à Putore*, because of his ill sinell; for when they are provoked or stirred, they stink grievously. Their delight is to suck egges; kill and eat Hens and Chickens: and it is worth observing, that their craft in devouring their prey is singular; for to the intent that the sillie creatures to be devoured may not betray them to the housekeepers, the first part that they lay hold on with their mouthes is the head of the Hen or Chicken, by which means they bite off their heads, and so keep them from crying. *The Poul-cat.*

The *Weasel* in Latine is called *Mustella*, from μῦς and στέλλω, of snatching up of mice: for (though an enemie to pullen) she devoureth and destroyeth mice: and because she hath been often seen to carrie her young ones in her mouth, some have thereupon supposed, that she conceived by the eare and brought forth by the mouth: and for this cause *Aristeas* (mentioned by *Gesner* and *Topsell*) writeth that the Jews were forbidden to eat them; for this *The Weasel.*

this their action is an embleme (saith he) of folly and foolish men, which can keep no secrets but utter all that they heare : for there be many, who when they have heard tales with their eares, enlarge them with their tongues, and by adding to reports turn mole-hills into mountains, *& sic crescit eundo* ; because as many have itching eares, so some have scratching and augmenting tongues, desiring to be heard as the reporters of news. But the Egyptians turn it into another signe, and say that their copulation at the eare, and generation at the mouth, are emblemes of speech, which is first taught to the eare, and then uttered by the tongue. All which are prettie phancies, although they be founded upon a mistaken ground; as before I shewed.

Howbeit, this is recorded for a truth, that whereas the Basilisk killeth all creatures with her poyson that approch unto her, or contend with her, the Weasell onely is found to match her; witnessed not onely by *Plinie*, but by others also, who besides this Weasell know not of any other beast in the world, which is able to stand in contention against the Cockatrice. But note that Rue is hatefull to a Serpent, and good against poyson; the Weasell therefore useth to eat of this herb both before and after the battell ; so well hath Nature taught her to find a preservative against her venimous and hurtfull adversarie : and on the contrarie, so well is Nature pleased, that no beast should be without his match. In a word, seeing the Weasell (as I said before) will destroy mice as well as hurt pullen, it serveth as an embleme to demonstrate, that one sometime may make use of an enemie ; and though every thing be not good for one thing, yet it doth not follow that it is therefore good for nothing. But I leave the Weasell, and come to the Mole.

*Lib. 8. cap. 21.

An embleme from the Weasell, concerning the use of an enemie.

The

The *Mole* is a creature well known; the snout of it is like to the nose of a Shrew-mouse; and as for eyes or sight, she wanteth either: onely the * place where the eyes should stand have a little black spot like a millet or poppie seed. In Latine she is therefore called *Talpa*, from the Greek word τυφλὸς, *blind*. And yet (* saith one) by dissection of a Mole great with young, it hath been proved that the young ones before birth have eyes, but after birth living continually in the dark earth without light, these their seeming eyes cease to grow to any perfection.

The Mole.

*Plin. lib. 11. c. 37.

*Topsell.

And some again have also witnessed, that although the Mole be blind all her life time, yet she * beginneth to open her eyes in dying: which * I find thus applied, and it is a prettie embleme. This serveth to decipher the state of a worldly man, who neither seeth heaven, nor thinketh of hell, in his life time, untill he be dying: and then beginning to feel that which before he either not believed, or not regarded, he looketh up and seeth. For *in morte, velit nolit*, saith* *Geminianus*, even against his will he is then compelled to open his eyes, and acknowledge his sinnes, although before he could not see them. It was the case of *Dives* to live and die in this black mistie blindnesse, for he had no grace to look up till he was in torments, and then (alas) it was too late. Yet herein was that saying of *Gregory* plainly verified; *Oculos, quos culpa claudit, pœna aperit.*

*Gemin ex Arist.

*Idem lib. 5. c. 29. and Dr. Will. on Levit. cap. 11.

An embleme from the Mole. A sinner, though blind in life, sees in death.

*ibid. cap. 29.

The *Martins* and *Ermins* be small beasts, as little, or lesse then a Squirill; the furre of whose skins is precious and of great esteem, worn onely by kings and noble personages: & although these beasts be not bred in England, yet there be plentie of them in many places beyond the seas: * they are said to have a sweet smell in their dung or excrement, like the Musk-cat; which proceedeth rather from the nature of the beast then from the meat which

The Ermin.

*Meaning the Martins.

which she eateth: and for an ease to gouty legs, it is good to apply these Martins skinnes.

The Sivet-cat.

The *Zibet* or *Sivet-cat*, is a beast bigger then any Cat, and lesser then a Badger, having a sharp face like a Martin; a short, round, blunt, eare, black without, but pale within; the eye of a blew skie-colour, the foot and leg black, and more broad or open then a Cats: It hath black claws, a black nose, and is spotted all over the body, but on the nose, with certain other marks notably described by *Gesner* and *Topsell* in their book of beasts.

This is a beast given much to cleanlinesse, and from this beast proceedeth that precious drug which we call *Sivet*. It is an excrement not growing in the cod or secret part onely, but in a peculiar receptacle by it self, increasing every day to the weight of a groat: and who they be which keep of these Cats tame or inclosed, must remember to take away this distilled liquour every second or third day, or else the beast doth rub it forth of his own accord.

The Musk-cat.

That creature which men call a *Mus-cat* or *Musk-cat*, doth much resemble a Roe, both in greatnesse, fashion and hair, excepting that it hath thicker and grayer hairs: the feet also are hooved, and in the province of *Cathay* these Cats are found. This beast is that from whence the Musk proceedeth, which groweth in the navell or in a little bag near unto it; and of it self it comes to be ripe, whereupon the beast itcheth, and is pained: he therefore rubbeth himself upon stones, rocks, and trees till he break the bag; then the liquour runneth forth, and the wound closeth: but soon after, the bag comes to be full again.

The Cat.

The common or vulgar *Cat* is a creature well known, and being young it is very wanton, and sportfull; but waxing older, very sad and melancholy. It is called a *Cat*,

Cat, from the Latine word *Cautus*, signifying *wary*; for a Cat is a watchfull and warie beast, seldome overtaken, and most attendant to her sport and prey: she is also very cleanly and neat, oftentimes licking her own bodie to keep it smooth and fair, which she can do in every part but her head; she useth therefore to wash her face with her feet, which she licketh and moisteneth with her tongue: and it is observed by some, that if she put her feet beyond the crown of her head in this kind of washing, it is a signe of rain.

And again, it is ordinary to be known, that the male Cat will eat up the young kitlings if he can find where they are: the reason of which is because he is desirous of copulation, and during the time that the females give suck they cannot be drawn unto it.

Why the male Cat eateth his young.

Moreover, it hath been usuall for many men to play and sport with these creatures; in which regard, *Topsell* very fitly calleth a Cat, *the idle mans pastime*: affirming further that many have payed dearely for their unadvised sporting. Whereupon he tells a storie of a certain companie of Monks much given to nourish and play with Cats, whereby they were so infected, that within a short space none of them were able either to say, reade, pray, or sing in all the monasterie: the reason of which is, because the savour and breath of Cats destroy the lungs, and consume the radicall humour. Wherefore it is a means to bring any into a consumption, who shall suffer these creatures to lie with them upon their beds, for their breath (especially in a close chamber) infecteth the aire: therefore they be also dangerous in time of pestilence, and apt to bring home venimous infection; in which regard it is very expedient to kill them in such perilous times, as they use to do in cities and great towns.

Wherein Cats be dangerous.

A storie shewing the danger of making Cats too familiar.

And

And note that above all things the Cat abhorreth wet or water; from whence arose that proverb,

Catus vult piscem, sed non vult tangere lympham.

Fain would the Cat some fishes eat,
But loath to wet her foot so neat.

In which she is a fit embleme of those, who will shrink to encounter with that pain which harbours and bringeth forth their wished gain. For be it so that we desire the sweetnesse of the well relisht kernell, then must we likewise crack the hard shell; for *Difficilia quæ pulchra, Excellent things are hard to come by.*

Lib. 18. *Olaus Magnus* makes mention of an abundance of wild Cats in *Scandivania,* and where he speaketh of the Lynxes, he sheweth that they devoure many of these Cats: affirming moreover that the skinnes of these creatures are good against the sharp cold of winter; whereupon those of *Scythia* and *Moscovia* use them for garments.

The Mouse. The *Mouse* is a creature commonly of a dunne colour; howbeit in differing places they have differing colours: for in some countreys they be not dunne or ash-coloured, but blackish; in some again they be white, in some yellow, and in other some brown. In Greek he is called μῦς, & in Latine *Mus* from μύζειν, *mutire,* of the piping noise which he maketh. *Some say that mice increase and decrease in the quantitie of their bodies, according to the course of the moon, being ever least when the light of that horned lamp is furthest from the full. The like also I find recorded of Cats eyes; for (as Mr *Topsell* writeth) the Egyptians observed in the eyes of a Cat, the increase of the moon-light: and in the male, his eyes do also varie with the sunne; for when the sunne ariseth, the apple of his eye is long; towards noon it is round: and at the evening it cannot be seen at all, but the whole eye sheweth alike.

*Gemin. lib. 5. cap 6.

Ælianus

* *Ælianus* writeth that Mice excell all living creatures in the knowledge and experience of things to come; for when any old house, habitation, tenement, or other dwelling place waxeth ruinous and ready to fall, they perceive it first; and out of that their foresight, they make present avoidance from their holes, and betake themselves to flight even as fast as their little legs will give them leave, and so they seek some other place wherein they may dwell with more securitie.

*Var. hist. lib. 1.

I remember a storie of a man eaten up with Mice; by which we are taught that no humane device can withstand Gods judgements. There was (saith *Munster*) a certain Bishop of *Magunce* named *Hatto*, who formerly had been the Abbot of *Fulden*, and in his time there was great famine in that countrey: this Bishop, when he perceived the poore to faint, and to be oppressed with hunger, gathered together a great number of them into a large barn, and setting it on fire he burnt them up; saying, that they little differed from Mice, and were profitable for nothing, for they did but consume and waste the corn. Which damned trick and devilish tyrannie, the great God of heaven would not suffer to go away unrevenged, for he commanded the Mice by great flocks to invade this Bishop and set upon him without pitie, vexing him both night and day with purpose to devoure him. Whereupon he fleeth for refuge into a certain tower compassed by the water of *Rhene*, thinking himself to be then safe, and free from their greedy gnawings and cruell bitings; but he was much deceived: for the Mice followed him, and like speedy executioners to perform the just judgement of God, came swimming over and at the last gnawed such holes into his bodie that they let in death, who suddenly sendeth out his soul to give an account for this foul deed. Which accident was done in the yeare of our Lord 914, and the tower ever

A storie of a Bishop eaten up with Mice.

ever since called *the tower of Miee. Munster Cosmog.*

Moreover, amongst other things which the Mouse taketh great delight to eat, he useth to watch for the gaping oister, and seeing it open, he thrusts in his head; which when the oister feeleth, she presently closeth her shell again, and so crusheth the Mouses head in pieces. Whereupon one made this embleme, *Captivus ob gulam*; whereby he deciphereth the condition of those men who destroy themselves to serve their bellies. Or (as another speaketh) such are here signified which are altogether given to their bellie, and to carnall pleasure; for satisfaction whereof, *multa pericula sustinent*, they undergo many dangers, and pay dearly for their follie.

An embleme from the Mouse, concerning those who destroy themselves to serve their bellies.

The *Shrew-mouse* is called by the Hollanders, *Molmusse*, because it resembleth a mole. For it hath a long and sharp snout like a mole, teeth very small, but so as they stand double in their mouth, for they have foure rowes, two beneath, and two above; and as for the tail, it is both slender and short. In Latine it is called *Mus araneus*, because it containeth in it poison, or venime like a spider; and if at any time it bite either man or beast, the truth of this will be too apparent. But commonly it is called a *Shrew-mouse*; and from the venimous biting of this beast, we have an English imprecation, *I beshrew thee*: in which words we do indeed wish some such evil as the biting of this mouse. And again, because a curst scold or brawling wife is esteemed none of the least evils, we therefore call such a one a *Shrew*.

The Shrew-mouse.

The *Dormouse* is a beast which endeth his old age every winter, and when summer cometh, reviveth again: which * some have therefore made an embleme of the resurrection. They are exceeding sleepie, and fatted with it. Their hair is short, and in colour variable, onely their bellie is alwayes white: and for mine own part, I ever thought them to be no bigger then an ordinary mouse, but

The Dormouse.

* Epiphan.

but in *Gesner* and *Topsell* they are said to be greater in quantitie then a squirrell.

The *Alpine Mouse*, or *Mouse of the Alps*, is of near akin to the dormouse: it is almost as big as a conie, and not much unlike it, saving that their eares be shorter, and their tails longer. *Munster* doth thus expresse their natures, saying; they be much given to sleep, and when they are waking, they be either playing and skipping to and fro, or else doing something; as gnawing with their teeth, scraping with their nails, or else carrying in their mouthes either straw, rags, or soft hay, or any such thing that may be good for their nests. When they live thus wild upon great hills and mountains, and are minded to go and seek their prey or food, one of them standeth in an high place to give notice to the rest when any enemie or danger approcheth; which when he perceiveth, he barketh, and then all the other catch as much hay as they can, and so come running away. *The Alpine Mouse.*

But this is strange; * Sometimes one and sometimes another lieth down upon his back, and as much soft hay as may be laid upon his breast and bellie, he claspeth and keepeth fast with his feet, and then another of his fellows getteth him by the tail, and so with his prey draweth him home. About autumne they begin to hide themselves in their nests, the which they make so close that no aire or water can hurt them: then do they lie hidden and sleep all the whole winter, yea six or seven moneths without any meat, rolling themselves round like unto a Hedge-hog. Now the inhabitants do oftentimes observe and mark the place of their nests, and then digging away the earth untill they come at them, they find them so oppressed with deep sleep that they carrie them and their nests to their houses, where they may keep them sleeping untill the summer, if they do not heat them at the fire, or the warm sunne. * Munst. Cosm.

The

The Rat.

The *Rat* is foure times so big as the common Mouse, being of a blakish duskie colour, and is thought to belong to the kind of Mice: Howbeit you shall sometimes see a Rat exceeding the common stature: and this the Germanes call * *The King of Rats*, because of his larger and greater body; adding moreover that the lesser bring him meat, and he lieth idle: and yet this (perhaps) may be in respect of his old age, not being able to hunt for himself.

* Tapell.

Dogs.

There be of *Dogs* divers kinds, neither is their any region in the world where these are not bred. And of those kinds some are for hunting, some for fighting and defence, some for the Boar, Bull or Bear, some for the Hare, Cony, or Hedge-hog, and some for one thing, some for another. They being forth their young ones blind, which is in regard that they scratch their dams when they stirre in their bellies, which makes her therefore bring them to their birth before they be come to their eyes or sight, as is in many other creatures beside: and from hence arose the proverb, *Canis festinans cecos parit catulos. The hastening bitch brings forth blind whelps.* Which is a fit emblème against all rashnesse and overhastie speed in any action: for hasse makes waste, and sudden projects are seldome ripe.

An embleme from Dogs, being a caveat against too great haste in any action.

The Grey-hound.

But of all Dogs the *Grey-hound* may take the first place; he exceedeth in swifnesse, and is preserved for the chase. This is the Grecian Dog, called therefore a *Grey-hound.*

The Hound.

The *Hound* is of a duller temper, whose onely glory is in his smell: and of Hounds there be sundry sorts, but the least is the *Beagle.*

The Spaniel.

In the next rank we may place the *Spaniel*, whereof there is one for the land, and another for the water; and as the Hounds were for beasts, so these are for birds.

The Mastive.

Then there is the *Mastive*, whose virtue is onely in his courage, strength, sharpnesse of teeth, and apteesse

to

to encounter with any fierce wild beast; against which they are so cunning, that but seldome or never do they part any other then victours; and how fiercely they will fight with their own kind, is apparent: nay sometimes they have fought in defence of their masters, and either kept them safe from harms, or detected the murderers, or else in some other kind shewed their love; as a little after I purpose to declare.

And these (perhaps) at the first were the chief kinds (unlesse the *Tumbler* and *Lurcher* ought to be reckoned by themselves:) for concerning *Mongrels*, they came by commixtion of kind; which is thought to be first invented by hunters, for the amendment of some naturall defect which they might find in those of a single kind. And then again, these Mongrels mixing likewise diversly, have produced those severall seeming kinds which now are.

And as for your mimick Dogs, it is supposed that they came first from a commixtion of Dogs with Apes, or Apes with Bitches. Other Curres have had either Wolves, Foxes, or some such like creatures to be their Sires; as many think.

*Lysimachus had a Dog which waited on him both in the warres and elsewhere: at the last dying and being brought to be burned (according to the custome of the countrey) the poore Dog leaped into the flames, and was burned with him. And when *Titus Sabinius*, with his family was put to death at Rome, one of their Dogs would never be driven from his master, and being offered meat, he took it up and carried it to the mouth of his dead master, endeavouring to have him eat; and when the dead carcase was cast into the river *Tyber*, the Dog swam after, labouring by all means possible to lift his master out of the waters. Neither is it other then a credible

*Bark. in his *Summ. Bonum.* A story of a loving Dog.

Another storie.

dible report out of *Plutarch*, that as King *Pyrrhus* marched with his armie, he happened to passe by a Dog which guarded the body of his master, who lay dead upon the high-way; which when the King had beheld a while as a pitifull spectacle, he was advertised that this was the third day of the poore Dogs fasting and watching there. Whereupon the King commanded the body to be buried, and the Dog for his fidelitie and love to be kept and cherished. Not long after the King happened to make a muster of his army, to see how well they were furnished; and the Dog being by, remained sad and mute, untill at the last he espied the parties who murdered his late master, and then he flyeth upon them with such a wonderfull force and fury that they had like to have been torn in pieces by him, turning himself now this way, and then that way, earnestly beholding the King as if he desired justice, howling most pitifully; whereupon the King caused the said men to be committed, examined, and racked: and then not able to conceal it any longer, they confesse the fact, and are put to death. The like also was once known to happen in France: for one gentleman having killed another, the murder was discovered by the Dog of the slain man, in like manner as before; onely the circumstances did a little differ: for the Dog and the suspected person were put both together in a single combate for clearing of the matter; and when the murderer could not defend himself from the fury of the detecting Dog, he confessed the whole matter: in memory whereof the manner of the fight was painted forth, and kept to be seen many years after.

Another storie.

Apes.

Of *Apes* there be sundry kinds, and many of them in something or other do resemble either men or women; as the common *Ape*, the * *Satyre*, the *Norvegian* monsters, the *Prasian Apes* which are bred in India, the *Bearded Ape* living in Ethiopia and India likewise, the *Cepus* or

* Breeding in islands on the further side of Ganges, and in the Eastern mountains of India.

or *Martin Munkey*; all which either in their shape or countenance come near to men: as also the *Sphinx*, which hath an head, face, and breasts like to a woman. Besides which there is the common Munkey, the *Baboon*, the *Tartarine*, not much differing from a Baboon; and the *Satyrine* monster, bearing the shape of a terrible beast, and fit onely to be joyned to the story of *Satyres*. Then again there is the *Simivulpa* or *Apish-Fox*; and in America a very deformed creature which may be fitly called the *Bear-Ape*; and another which is called the *Sagoin*. Unto which (as not impertinent) may be also added the *Lamia*, which is a beast living in Lybia, with paps, a face, head, and hair like a woman, though in every other part like a terrible beast, full of scales, and a devourer of such passengers (as at unawares) shall happen to come near her. And as for the Fayrie tales of the *Lamia*, they nothing belong to this creature: neither be those common reports of *Sphinx* his *riddle, any other then fables. Howbeit there is a true storie of one, whose name was *Sphinx*, slain by *Oedipus*; which he could not do till he had scaled that strong fort which she had firmly builded for her own defence; and unto all but *Oedipus*, it proved as a thing impregnable. As for *enigma*, what it was, the margent sheweth.

But to proceed and leave this digression, the common Apes must be again remembred. They be very nimble and active creatures; and for their greatest delight, it is to imitate man in his actions.

About the mountains called *Emodii*, which be certain hills in India, there is (saith *Munster*) a large wood full of great Apes, which when *Alexander* and his souldiers saw standing afar off, they supposed them to be enemies, and therefore were purposed to fight and set upon them: but some natives of that countrey being present, shewed to *Alexander* that it was nothing but an assembly of Apes,

*Ænigma in the Thebanlanguage signifieth an inrode or warlike incursion; wherefore the people complained in this sort: This Grecian Sphinx robbeth us in setting upon us with an Ænigma but no man knoweth after what manner she maketh this *enigma*. Topsf. history of beasts, pag. 18.

Alexander deceived by Apes.

whose contention was to imitate such things as they had seen; whereupon the King turns his battell into laughing, and his fighting into merrie disport and pastime.

How to catch wild Apes.

Moreover, I have sometimes read how these Apes are taken. The hunters intending to catch them, use to come and set full dishes of water within sight of the Apes; and then they begin to wash their eyes and face: which done, the water is suddenly taken and conveyed away, and in the stead thereof, pots full of birdlime or such like stuffe, are set in their places. Then the hunters depart a little from them; and the Apes, observing how they before had washed their face and eyes, come now presently down from the trees, and thinking to do as the men did, they daub and anoint their eyes and mouthes with birdlime, so and in such a manner, that neither knowing or fearing any thing, they are suddenly made a prey, and taken alive.

* Plin. lib. 8. cap. 34.

And again, there is also another device mentioned by * *Plinie*, and this it is. They who use to catch Apes, take unto themselves buskins, and put them on in the sight of the Apes, and so depart; leaving behind them other buskins inwardly besmeared with some such stuffe as was mentioned before, with which they mix some hairs that the deceit may not appear: then do the Apes take them up, and plucking them upon their legs and thighes, they are so besnared and entangled, that thinking to runne away they are deceived. *Ælianus* also writeth that when the Lions be sick, they catch and eat Apes, not for hunger, but for physick.

An emblème from the Ape and her young.

* Filium quem magis diligit, in brachiis portat, alium verò in humeris gestat. Gemm. lib. 5. cap. 10.

And for the Ape, this also is her practice: when she hath two young ones to be nourished at once, that which she loveth * best shall be alwayes held and hugged in her arms; but the other being lesse regarded, is more roughly used, and glad to sit upon the back of his dammé, open to all dangers, little or nothing respected: and yet it so happeneth,

happeneth, that the neglected one commonly fareth best. For whilest the other is hugged too hard, his dammie killeth him with kindnesse; but this rejected one liveth, although he wanteth the taste of foolish cockering. So have I sometimes seen it amongst the fond sort of partiall parents, that with too much love they often hurt some of their children, whilest the other left unto their hardest shifts, thrive and prosper in a harmlesse course. *Non amo nimiùm diligentes*, is therefore worth observing; because *omne nimium* is turned into *vitium*; & the readiest way to be soonest hurt, is to be fostred up in the fondest manner. For as he that flatters an usurer, claws the devil; so he that spareth the rod, spoils the child.

Against the fondnesse of parents.

Geminianus mentions the like custome of the foolish Ape, but he applieth the emblème otherwise, directing it as an example to decipher out the follie of a covetous man, who bears up and down in the arms of his affection, that fondling which he loveth, namely the world; but leaves and neglects other things wherein his love should shew it self, casting them upon his back and as it were behind him, although afterwards it be his hap to suffer for it. For when any necessitie shall urge the Ape to runne, she casteth down the young one in her arms; but the other behind her, sitteth still and hinders her course; so that being oppressed she is taken. In like manner when he, whose onely love and joy was in the world, is compelled by death to flie away, he letteth go that which was his best beloved, and thinking to escape the eager pursuit of his fierce tormentours, he is deceived, because the neglect of things to be regarded, lieth heavie on him, and they help now to make him wretched. It is better therefore to be poore then wicked; for it is not thy povertie, but thy sinnes, which shut thee out from God: and (fond fool) do not they take pains without gains, labour in vain, and traffick ill, who lose their

The follie of a covetous man.

In them who are blessed, the dew of heaven is before the fatnesse of the earth.

souls to fill their bagges? For (as Isaac shewed in blessing him who was to be blest) the dew of heaven must go before the fragrant fatnesse of the fertil earth; but in him who lost the blessing, the earths fatnesse goes before, and takes place of the dew of heaven.

The Bear.

But do you not see the pawing Bear? he is a creature well known, and such a one as is found in divers places of the world. * *Plinie* describeth this beast at large, not onely shewing the time and manner of their birth, but also of their retreating to their caves, long time of fasting, and of sleeping there. They bring forth young within the space of thirtie dayes after their time of copulation, which at the first be shapelesse and void of form, without eyes, without hair, their nails onely appearing and hanging out, each whelp being little bigger then a mouse; and these, by licking, are moulded into fashion, and day by day brought to perfection.

*Lib. 3. cap. 36.

This beast can fast many dayes, and by sucking his foremost feet, asswage or somewhat mitigate his hunger. Some say that they can be without meat 40 dayes, and then when they come abroad they are filled beyond measure; which voracitie, and want of moderation, they help again by vomiting, and are provoked unto it by eating of ants. But above all other things, they love to feed on hony: whereupon they will fearlesly disturb the bees, and search into hollow trees for such repast; not altogether to fill their bellies, but most of all to help a dimnesse in their dull eyes. Moscovia hath many such breeding bees: and *Munster* tells a storie how a Bear seeking for hony, was the cause of delivering a man out of an hollow tree. There was (saith he) a poore countreyman who used to search the woods and trees for the gain and profit of hony, and espying at the length a very great hollow tree, he climbed up into the top of it, and leaped down into the trunk or bodie, sinking and sticking

A storie of a man saved by a Bear.

ing fast in a great heap of hony even to the breast & almost to the throat: and having continued two dayes in this sweet prison, during which time he fed himself with hony, all hope of deliverance was quite gone; for it was impossible he should climbe up and get out, neither could his voice be heard although he cried with an open mouth, especially in such a solitude and vast place of wood and trees: so that now being destitute of all help and consolation, he began utterly to despair; and yet by a marvellous, strange, and (as it were) an incredible chance, he escaped: for it so fell out that he was delivered and drawn forth by the help and benefit of a great Bear, which seeking for hony, chanced to happen upon this tree: the Bear scaleth it, and letteth her self down into the hollownesse thereof, with her back-parts first, in manner and fashion of man when he climbeth. Now the man in the tree perceiving this, in a great fear and affrightment, he claspeth fast about the reins and loins of the Bear, who being thereupon terrified as much as the man, is forced to climbe up again, and violently to quit herself from the tree (the man in the mean time using great noises and many outcries) and so by this accident, a wished, but hopelesse libertie was procured: for the Bear being feared, drew up the man and knew not of it.

And note that in Bears their head is very weak, being contrary to the Lion, whose head is alwayes strong. And therefore when necessity urgeth that the Bear must needs tumble down from some high rock, she tumbleth and rolleth with her head covered between her claws, and oftentimes by dusts and knocks, in gravell and sand, they are almost exanimate and without life.

Neither is it seldome that their tender heads catch deadly wounds, although they cannot quickly feel them, by reason of their ardent love to hony. For (as * *Olaus Magnus* mentioneth) in Russia and the neighbour countreys

* North. hist. *lib.* 18.

countreys they use to catch Bears with a certain engine like the head of a great nail beset round with sharp iron pegs, which they hang upon a bough just before that hole where the Bear fetcheth his hony, who coming according to his wonted custome, strives to thrust it away with his head, but the more he puts it from him, the stronger it cometh back upon him; howbeit he being greedy of the hony in the tree, ceaseth not to push against the engine, untill at last his many knocks cause him faintingly to fall. So have I seen many perish through their own vain and fond delights; for as the sweetnesse of hony causeth the death of the Bear; so the delight in sinne causeth the death of the soul. * *Geminianus* applies it thus; saying, that as the hony-seeking Bear destroyes her self by her own folly, in beating back the piercing hammer; so man, who seeketh after the pleasures and delights of sinne, wounds himself by pushing against the pricks: for the word of God, as a * hammer breaking the rocks, resisteth both him and his sin; which whilest he * casteth from him, it doth more strongly impinge upon him, and will at the last * day judge him to perdition.

An embleme concerning the end of sins sweetnesse.

*Gamin. lib. 5. c. 35.

*Jer. 23. 29.

*Psal. 50. 17.

*Rom. 2. 16.

The Bugill.

The *Bugill* is of the same kind with Kine and Oxen, and so is that other beast which we call a *Byson*.

Wild Bulls.

The *Byson* is a kind of wild Bull, never tamed, and bred most commonly in the North parts of the world. He is also called *Taurus Paonicus*, *The Paonian Bull*, of which there be two kinds, the greater and the lesse. Neither do I think these to be any other then those wild Bulls of Prussia mentioned by *Munster*, in his book of Cosmography, saying, *There be wild Bulls in the woods of Prussia like unto the common sort of Bulls, excepting that they have shorter horns, and a long beard under the chinne. They be cruell, and spare neither man nor beast; and when any snares or deceit is prepared and set to take them,*

them, or if they be wounded with arrows or the like, they labour most vehemently to revenge their wounds upon him that gave them; which if they cannot do, then through madnesse, by rushing and stumbling on trees, they kill themselves.

A frantick beast, which, when he taketh harm
And cannot give, dies whil'st revenge is warm.
Such savage beasts there be in humane shape,
Whose moodie madnesse makes them desperate;
And 'cause they cannot harm their hurting foe,
They harm themselves, and shew their malice so.

Some hurt themselves because they cannot hurt others.

The *Elk* cannot live but in a cold countrey, as in *Russia, Prussia, Hungaria, Illyria, Swetia, Riga*, and such like. *Olaus Magnus* hath written much of this beast, and so hath *Topsell* out of *Albertus*, *Gesner*, and others; and *Plinie* describeth it to be a beast much like an Ox, excepting for his hair: but others call it *Equi-Cervus*, a *Horse-hart*, because it hath horns like an Hart, and is used in some countreys to draw men in coaches and chariots, through great snows and over ice. They be exceeding swift, and strong, and will runne more miles in one day, then a horse can in three, as *Topsell* mentions in his historie of foure-footed beasts.

The Elk.

The *Buffe* hath an head and horns like an Hart, the body like a Bull or Cow, as also the feet; and most commonly the colour of an Asse: Howbeit, being hunted he is said to change his colour; which (as * some imagine) cometh to passe, like as in a man whose countenance changeth in time of fear. This is that beast of whose skinne men make them Buffe-leather jackets; and in Scythia it serveth to make breast-plates, of strength, able to defend from the sly force of a fierce dart.

The Buffe.

* *Topsell.*

Of *Deere* there be more kinds then one. Amongst those which be termed *Fallow-deere*, there is the Buck

Of Deere.

and the Doe; the one being the male, the other the female. And concerning the *Red Deere*, there is the Hart and Hind; the Hart being the he, and the Hind the she.

Then again there is another sort bearing the names of *Roes*; of vvhich the male is the Roe-buck, and the female the Doe.

These creatures are said to be their ovvn Physicians, and (as it vvere) not needing the help of man, can cure themselves through a secret instinct of nature, and the providence of God their maker: for by feeding on that precious herb *Dictamnum*, or *Dittanie*, mentioned before in the third dayes vvork, they cure themselves of their cruell vvounds, and so become vvhole again: and for other ills, they have other herbs. The males are horned, vvhich they cast off once every spring; and being disarmed Pollards, they use to keep themselves close hidden, and go not forth to relief but by night; and as they grovv bigger and bigger they harden in the sunne, they in the mean time making some proof of their strength against hard trees: and when they perceive them to be tough and strong enough, then they dare boldly go abroad, thinking themselves vvell armed novv again. *Plinie* saith, they can endure to svvim thirty miles endvvayes: and vvhen they are to passe any great river, to go to Rut in some isle or forrest, they assemble themselves together in herds; and knovving the strongest and best svvimmer, they put him in the forefront, and then he vvhich cometh the second, stayeth up his head upon the back of the first, and all the rest in like manner even unto the last: but the foremost being vveary, the second ever takes his place, and he goes back unto the hindmost.

Gemin. lib. 5. c. 42.

** Lib. 8. cap. 32.*

The said Authour also vvitnesseth, that the right horn of an Hart is of a soveraigne and precious virtue: and as a thing

thing confessed of all, the Hart is knovvn to fill up the number of many years; as vvas proved by the Harts of *Alexander*; caught about an hundred years after his death, vvith rings and collars on them shevving no lesse. Being hunted and ready to be taken by the hounds, they vvill for their last refuge fly to houses and places of resort, choosing rather to yield unto man then dogs.

They go to Rut about the midst of September, and at the end of eight moneths they bring forth young, sometimes tvvo calves at once; and these they practise to a nimble using of their legs from the very beginning; leading them up to high rocks, and teaching them to leap, runne, and fly avvay as occasion serveth. A fit embleme of carefull parents, who teach their children vvhilest their years be green, instructing them betimes in the right vvay vvherein they ought to vvalk; according to that of Solomon, *Train up a child in the way he should go: and when he is old he will not depart from it*, Prov. 22. 6.

An embleme from the Hart; shewing that children should be taught betimes.

And again, in their flying to man vvhen the hounds oppresse them, they be fit emblemes of those vvho fly to that God in the cloudie dayes of dark affliction, vvhom before they sought not after: for saith the Lord, *In their affliction they will seek me early*. And is it not often seen, that *Misery can open those eyes which happinesse hath closed, and abate that Tympanie which prosperitie hath ingendred?* Yes verily. For as the vvaters of the sunne, vvhich *Curtius* mentions, are cold at noon vvhen the Aire is hottest, and hot at midnight vvhen the Aire is coldest; so is it vvith us: our zeal is coldest in the sunneshine of prosperitie, but gathers heat vvhen trouble cometh: And if trouble cannot do it, nothing can.

Another.

Our eyes are opened in afflictions.

Moreover,

Another emblème concerning those who sorrow to part with earth: although they may gain heaven.

Moreover, this also is not impertinent. I have read of the Hart (saith one) that he weeps every yeare for the shedding of his head, though it be to make room for a better. So do I see the worldling go away sorrowfull at this very saying, *Go, sell all that thou hast*, though it be for treasure in heaven: the reason of which is, because men do not look at what they are to have, but what they are to part with; and at any time will be for one bird in the hand, rather then five in the bush; yet slight it not, but mark it well; He that consults with his bodie for the saving of his soul, will never bring it to heaven; neither is it any harm to lose the worse for finding of the better, nor any thing in hand too dear for that happinesse which is yet to come. No matter therefore though we sow in teares, so we may reap in joy: for as the difference between time and eternitie is unspeakable; so it is also, betwixt heaven and earth.

*Gemin. lib. 3. Another emblème.

Also, this I likewise find, that when the Hart is * taken by the hounds, or any other device of the hunters, he will then shed forth teares as well as when he casteth his head. So should a penitent and a watchfull sinner, who is carefull to avoid the wiles of the devil, he should not cease to weep when he seeth how he is overtaken; for there is one on high who marks his teares, and puts them up into his bottle; alwayes pleased to see a sorrowfull bespotted soul baptized in the pearled drops of repentant dew. But to proceed.

We should weep for sinne, by the example of the Hart.

Tragelaphus.

Tragelaphus is a kind of Deer-goat, of which *Gesner* maketh two sorts; the first whereof hath horns like a Deer; the second like a Goat, but more crooked and bending backward.

The Rangifer.

There is likewise another beast, most common in the Northern parts; *Olaus* calleth him the *Rangifer*: he also hath horns like a Deer, and on him men use to ride in stead of horses.

The

The common *Goats* are easily known; but the Syrian Goats are differing, having long flapping eares like a deep-mouthed hound: and of these there be two kinds, the greater and the lesse. Then again there is another Goat called the *Rock-goat*, differing from the rest; and as for the Kid, it is a young Goat, a sucker, or one newly taken from their damme.

The Goat

The *Badger* fighteth upon his back, and so maketh use both of his teeth and claws: the Fox makes no denne, but driveth away the Badger out of his, by pissing in it.

The Badger.

Sheep naturally be of a hot disposition, weak, tender, harmlesse, and so farre from greedinesse, that they will live of lesse food then any other beast of their bignesse. They be also pitifull amongst themselves; for when they perceive any one of their fellows to be sick and fainting through heat, they vvill stand together and keep avvay the sunne. The rammes and evves are fit for generation from tvvo yeaes of age untill they be ten; neither do vve find any thing, either in them, or vvithout them, vvhich is not of some good use and profit. And note that the evves bear their young ones in their bodies an hundred and fifte dayes, and no longer, according to the common account. I have heard of sheep in some countreys vvhich have yellovv fleeces; but here vvith us, they be alwayes either black, white, or of a colour near to a russet. It is strange how in a great flock, every lambe should knovvv his ovvn damme; and prettie sport is it, to see hovv they vvill play, and skip up and down. Hovvbeit the shepherds find much trouble in one propertie belonging to these dancing creatures; for if one lambe chance to skip into a river or ditch, the rest (if they be by) vvill suddenly follovv and do the like. In vvhich they be emblemes of those, vvho vvill rather strive to do as the most then as the best: and yet goodnesse goes not by multitude; for the most are commonly the vvorst: neither

Sheep.

An embleme from the Lambes, concerning those who often perish by following the steps of the greatest multitude.

ther is a way alwayes to be chosen for the number or quantitie of companions, but for the qualitie; and better is it to go to heaven with strangers, then to hell with our friends. *Dives* therefore would have sent from the dead, to have it told his brethren. What? that the way to happinesse is to follow goodnesse, although it be but *grex pusillus*, a small and little flock.

The Horse. *Mares* are said to have their full increase in five years, but the *Horse* not till six. And there be some who write that an Horse should not be broken or tamed untill two years of age: and first of all he is to be rubbed and chafed, and used with flattering and gentle words, his stable should be laid with stone, and by little and little he must be used to go upon the stones that his feet might be hardened. At the beginning let not him who shall sit or break him be too rough, not weatie him with running, but prove and turn him gently on both sides, and touch him rather with the stick then spurre.

They are said not onely to have knowledge of their riders and keepers, but also of their generation and descent, knowing their sires and dames in such wise, that (as* *Plinie* saith) they will refuse to couple or engender with them: which how true it is, the breeders of Horses be the best witnesses. They be apt to learn, having a greater love to exercise then any other beast. Their courage and valour is infinite, and being once trained unto it, they take an exceeding delight in the warres, and will (as it were) prepare themselves man-like for the same. Neither hath it been but sometimes, and that not seldome known how they have * mourned for the losse or death of their masters: and how apt they be to endure labour, there is none but knoweth.

* *Plin. lib. 8. cap. 24.*

The markes of a good Horse.

But to know a good Horse and his age, these be his marks. He should be of one colour, excepting some mark or starre to grace him; his mane ought to be thick and

and ſtanding up, his loins ſtrong, his head ſhort, his neck muſt be erect, his eares ſmall according to the proportion of his head, a broad breaſt, a mean bellie, ſhort hips, a large tail and ſomewhat curled, ſtraight legs, and equall knees, ſtedfaſt hoofs and groſſe, and yet not too big nor ſmall, and in his legs not ſo much fleſh as bone.

As for his age, when he is two years old and an half, his middle teeth both above and beneath do fall; when he is three years old, he caſteth thoſe which be like unto dogs teeth and bringeth forth new; before ſix, his upper double teeth do fall, and at ſix he ſupplieth his want again; at ſeven likewiſe he hath all equall, and from thence (ſome ſay) his teeth begin to be hollow: at ten his temples are alſo hollow, his teeth ſtick out, and his brows ſometimes wax gray. But of this enough.

How to know the age of an Horſe.

The *Gulon* or *Jerf* is a beaſt in the North parts of Suetia: *Olaus Magnus* hath largely deſcribed it in the eighteenth book of his Northern hiſtorie, affirming that it is the moſt inſatiable and devouring creature that is: for having killed his prey or found ſome carcaſe, he feedeth without giving over, untill his bellie be ſo full that it will hold no more, but ſtrouteth out and is puffed up like a bag pipe; then to eaſe himſelf, he thruſteth in between two narrow trees, and ſtraineth out backwards that which he hath eaten, and ſo being made emptie, returneth again and filleth himſelf as before, and then ſtraineth it out between the two trees, and returneth to the carcaſe to eat again; and thus he continueth untill he hath devoured all: which being conſumed, he hunteth after more, in this ſort continually paſſing his life. Which beaſt (as is worthily * obſerved) is a fit embleme of thoſe riotous and gluttonous men, who paſſe whole dayes and nights in eating and drinking; and when they have filled themſelves ſo full that their bodies will hold no more, they vomit up what they have taken,

The Jerf. A fit embleme againſt gluttonie and drunkenneſſe.

By Sir Richard Bark. in his *Summ. bonum.*

taken, and then return to their carowsing cups and cheer again, as though this onely were their felicitie, and end for which the mighty God had made them. But let them know, that (although many live as if they came but into this world to make merry and away) ruine will follow riot: and it were well for such men, as they have lived like beasts, if they could likewise die like beasts, never to live again: but (alas) they cannot; here is their misery, that they onely leave their pleasures behind them, and not their sinnes. For when Esau sells his birthright for a messe of pottage, he may wish for a blessing and not find it, although he seek with tears; or when Balthasar spends his time in damned quaffing, in stead of quenching his thirst he may drown his soul: for unlesse there were weight in vanitie, or substance in deceiving pleasure, these men put into the balance are found too light. Wherefore, let not eating and drinking take away our stomachs to spirituall things, but let us eat to live, and live to praise the Lord.

The flesh of this *Jerf* is nothing wholesome for food, but their skinnes are precious, and used of great men to be worn in garments: and as for his name, the Natives call him *Jerf*; but in Latine he is *Gulo, videlicet à gulositate*, from his gluttonous feeding.

And one thing more is yet observable. When the hunters come to catch him, they lay a fresh carcase in the place where he haunteth; that being filled, and as it were wedged in between his trees, they may set upon him and take him with ease. So is it often a wretched mans case, to perish by means of that wherein he took delight; and suddenly to be taken away, even whilest he follows his wonted course. But this is strange: for are men still ignorant, and yet to learn what this life is? It is a journey unto death, and every day doth make it shorter: and sometimes the nearer it cometh, the further we

Another embleme, concerning those who are suddenly taken away in the very act of their sinnes.

we are from thinking of it. For securitie is a great enemy to prevention; and upon thought that we shall not die yet, it comes to passe that we seldome prepare to die at all.

Make not therefore the last first, and first last; lest by being caught in thy sinnes, neither first nor last thou come at heaven.

The *Gorgon* or *Catoblepas* is for the most part bred in Lybia and Hesperia. It is a fearfull and terrible beast to look upon, it hath eye-lids thick and high, eyes not very great, but fiery, and as it were of a bloudie colour. He never useth to look directly forward, nor upward, but alwayes down to the earth: and from his crown to his nose he hath a long hanging mane, by reason whereof his looks are fearfull. Moreover, his feet be cloven, and his body all over as if it were full of scales. As for his meat, it is deadly and poysonfull herbs; and if at any time this strange beast shall see a Bull or other creature whereof he is afraid, he presently causeth his mane to stand upright, and gaping wide he sendeth forth a horrible filthy breath, which infecteth and poysoneth the aire over his head and about him, insomuch that such creatures as draw in the breath of that aire, are grievously afflicted, and losing both voice and sight, they fall into deadly convulsions. *Topsell.* *The Gorgon.*

Next unto which I may mention the *Cockatrice* or *Basilisk*, and so come to serpents. Now this is the King of serpents; not for his magnitude or greatnesse, but for his stately pace and magnanimous mind: for the head and half part of his body he alwayes carries upright, and hath a kind of crest like a crown upon his head. This creature is in thicknesse as big as a mans wrist, and of length proportionable to that thicknesse: his eyes are red in a kind of cloudy blacknesse, *The Basilisk.*

nesse, as if fire were mixt with smoke. His poyson is a very hot and venimous poyson, drying up and scorching the grasse as if it were burned, infecting the aire round about him, so as no other creature can live near him: in which he is like to the *Gorgon*, whom last of all I mentioned,

And amongst all living creatures, there is none that perisheth sooner by the poyson of a Cockatrice, then man; for with his sight he killeth him: which is, * because the beams of the Cockatrices eyes do corrupt the visible spirit of a man, as is affirmed; which being corrupted, all the other spirits of life coming from the heart and brain, are thereby corrupted also; and so the man dieth. His hissing likewise is said to be as bad, in regard that it blasteth trees, killeth birds, &c. by poysoning of the aire. If any thing be slain by it, the same also proveth venimous to such as touch it: onely a Weasell kills it; as in the description of that beast I have already shewed.

Topsf. Hist. of Serpents, pag. 125.

That they be bred out of an egge, laid by an old cock, is scarce credible: howbeit, * some affirm with great confidence, that when the cock waxeth old, and ceaseth to tread his hens any longer, there groweth in him, of his corrupted seed, a little egge with a thinne filme in the stead of a shell, and this being hatched by the Toad, or some such like creature, bringeth forth a venimous worm, although not this Basilisk, that King of serpents. *Plinie* describeth the Cockatrice not to be above twelve inches long, in which regard Mr *Topsell* thinketh this not to be the main and great Cockatrice, but rather that worm bred out of the former egge: wherein I wish every mans judgement to be his own.

Idem ibid.

Yet though this be a nocuous creature, it much magnifieth the power of God, in being able to make such a one by

note concerning nocuous creatures.

by the power of his word: and as for us, both concerning this and all other hurtfull things, to us (I say) is shewen the miserable condition which sinne hath made us subjects to: for before they might have been Adams play-fellows, all at his beck, at his service and command, none having power to hurt him, because there was nothing in him then for harm to work upon. But to proceed.

The Boas.

The *Boas* is a serpent of an extraordinary bignesse; it can swallow down a little child whole without breaking any bone: for as *Topsell* writeth out of *Solinus*, in the dayes of *Claudius* the Emperour, there was such a one taken at Rome with a child in his belly.

The Latines call it *Boa* and *Bova*, from *Bos*, because it desireth (and so do all Snakes and Adders) to suck the milk of Cows, insomuch that he will never kill them untill their milk be dryed up: and then he will eat their flesh, as before he had suckt their milk.

The Dragon.

The *Dragon* is the greatest of all serpents, as some write; and hath sharp teeth set like a saw, but his strength resteth in his tail rather then in his teeth; and therefore when he fights with the Elephant, he clasp-eth close about his legs: and sometimes he killeth him, but most commonly both die together; the Elephant for want of bloud, and the Dragon through too great fill of bloud, or else by the weight of the Elephants body falling on him.

He is sometimes in the * waters, and lieth often in his den; he sleepeth seldome, but watcheth almost continually; he devoureth beasts and fowls; and for his eye-sight, it is very sharp, so that in the mountains he seeth his prey afarre off. He is bred most commonly in India and Ethiopia, his greatest poyson

*Munst. Epit. Cos.

being in his tongue and gall: wherefore the Ethiopians cut away the tongue and eat the flesh. *Munst. Cosm.*

Plinie saith that through the strength of poyson in his tongue, it is alwayes lift up; and sometimes through the heat of the said poyson lurking there, his breath is so hot as if he breathed fire, by which contagious blast he *sometimes so tainteth the aire, that the pestilence proceedeth thereof. His wings will carrie him to seek his prey, when and where occasion serveth.

*Munst.

The Dipsas. The *Dipsas* is another kind of serpent, and those whom he stingeth die with thirst.

Hypnale. But those whom the *Hypnale* stingeth, die with sleep.

Prester. Such as are stung by the *Prester*, die with swelling.

Hæmorrhois. And the wounds of the *Hæmorrhois* procure unstanchable bleeding.

The Dart. The *Dart* taketh name from his swift darting or leaping upon a man to wound and kill him. His use and custome is to get up into trees and hedges, and suddenly to dart from thence.

The Amphisbena. The *Amphisbena* or *Double-head*, goeth both wayes, or moveth circularly with crooked windings, because he hath two heads and no tail, having a head at both ends: which (saith*one) is a fit embleme of popular sedition; for where the people will rule their Prince, needs must their motion be crooked; and where there be two heads, it is as if there were no head at all. Africa aboundeth with these, and sundry the other serpents.

*Purch. An embleme concerning government.

Cerastes. *Cerastes* is a serpent bred also in Africa, having two horns on his head, in manner of a snail; and from thence it is that he taketh his name, being called by the Grecians κεράστης, that is to say, *horned*. He is about a cubit in length, and of a sable colour. His biting for the most part is incurable: and with his horns he can fashion out (as it were) a little coronet, whereby he * allureth the birds unto him, and then (lying hidden in the sands, all but

* Purch.

but the head) he cunningly devoureth them. *Solinus*, and some others say, he hath not onely two, but foure horns; as may be seen in *Plinie, lib.* 8. *cap.* 23.

The *Viper* hath a bodie long and slender, like an eele or snake; a broad head, red and flaming eyes: and as for his teeth, they be inclosed (as it were) in a little bladder, in which he carrieth his poyson, from thence infusing it into the wound which he hath bitten. * Some Authours write, that when the Vipers engender, the male putteth his head into the females mouth, which she (being overcome with the pleasure of copulation) biteth off; affirming moreover, that their young use to gnaw themselves out of their dammes bellies, there being thereby an end both of male and female, the one in the time of conception, the other in the time of birth, and are therefore called *Vipers*, viz. *à vi pariendo*: but others alledge the testimonie of one *James Grevin*, who, in the 7 chapter of his 1 book of venimes, produceth the witnesse of * *Aristotle*, saying that the Viper putteth forth her young ones, infolded in a membrane, which breaketh about the third day; and also that sometimes those which are within the bellie issue forth, having gnawn asunder the foresaid membrane.

The Viper.

*Plin. lib. 10. cap. 62.

*Hist. anim. lib. 5. cap. ult.

The *Slow-worm* hath dark eyes and dull eares, and can heare or see but little. His skinne is thick, his colour is of a pale blew, intermixed on the sides, with some few blackish spots: he seldome hurteth, unlesse by chance he be provoked.

The Slow-worm.

As for the *Snake*, *Adder*, and such like, they be common amongst us; and so is that other already mentioned; *viz.* the *Slow-worm*. Howbeit we find that the Adder is a craftie and a subtil creature, biting suddenly the passers by; whereupon Jacob said that his sonne Dan should be *Coluber in via*, Gen. 49.

The Adder.

This, and other serpents, who change their coats

An embleme from the Adder casting his skin, concerning the benefit of abstinence and fasting, if it be rightly used.

when they cast off their skinnes, do first of all by fasting make their flesh low and abated, and then by sliding through a narrow passage, they slip them off. Which may be a fit embleme of those, who when they go about to cast off their old and former sinnes, know that an humbling of themselves before God, in abstinence and fasting, is very good, and a great help to fit them for repentance: for it is certain, that if our bellie be our god, then *gula* doth not onely make way for *Galen*, and *Bacchus* for *Æsculapius*; but even for *Tophet* also. Whereupon we find, that *Dives* in hell was not upbraided onely because he fared *deliciously*, but because it was *every day*. And how hard a thing it is for a man to serve any other god then his bellie, who is continually used to stuff his paunch, the common practises of carelesse livers make apparent; for whilest they sleep, and eat, and play, they never think of heaven, nor can be fitted to slip off their old sinnes: but on the contrary, a retired humblenesse will make them both fearfull and carefull how they walk. Blame not Paul then if this be part of his boasting, that he could out-fast, or out-watch the rest of the Apostles: for (saith S. *Hierom*) *Ardentes diaboli sagittæ, jejuniorum & vigiliarum frigore restinguendæ sunt.*

African Snakes and Adders.

Mr *Purchas* writeth that they have Snakes and Adders in Africa, whereof some are called *Imbumas*, five and twentie spans long living in land and water, not venimous but ravenous, whose custome is to lurk in trees, waiting there for their prey; and having taken it, they devour horns, hoofs, and all, although it be a Hart: and then swollen with this so huge a meal, they be as it were drunk and sleepie, and altogether unweldie for the space of five or six dayes. Moreover he affirmeth that the Pagan Negroes rost and eat them as great dainties.

A great serpent.

**Aulus Gellius* sheweth how *Attilius Regulus*, the Romane Consul, in the first Punick warre, encountered with

**Lib. 6. cap. 3.*

with a huge serpent at the river *Bagrada*, being forced to plant his engines and artillerie against him; and killing him, his skinne was sent to Rome for a monument, being no lesse then 120 foot in length.

Dragons in Congo.

In the kingdome of *Congo* be certain great Dragons with wings, in bignesse like to rammes, having long tails, and in their chaps divers jawes of teeth, of blew and green colour; they have two feet, and feed on flesh.

* *Purch.*

The Pagan Negroes * pray to them as gods, for which cause the great lords of the countrey keep them, that thereby they may make a gain of the peoples devotion when they offer their gifts and oblations.

The Scorpion.

The *Scorpion* is a venimous insect, somewhat fashioned like a crab, lobster, or creyfish; they have many legs, and carrie their stings in their tails: sometimes they eat their young ones and are of divers colours; the female is the biggest, and hath the sharpest sting. And note, that of the Scorpion is made an oyl which is good against the stinging of Scorpions: and so are love-sick youngsters cured; for when nothing will help them, they may again be healed by enjoying her who gave the wound.

The Asp.

The *Asp* is something like to a land-snake, but with a broader back; their eyes are red and flaming, and out of their foreheads grow two pieces of flesh like an hard skinne: and for their poison, it is in a manner incurable. *Plinie* writeth that they go alwayes two and two together, and if one of them be slain, the other will follow eagerly, and seek up and down after him that slew his mate: but it is the * providence of God Almighty to give as many remedies against evil, as there be evils in the world. For the dulnesse of this serpents sight, and slownesse of her pace, doth keep her from many mischiefs which otherwise would be done. The best way to cure their stings, is presently to cut off the member bitten.

Plin. lib. 8. cap. 23.

* *Topsell.*

There be * they who make three sorts of them; that is

* See the author of *Du Bart.* Summarie.

to say, the *Terrestriall* (five handfulls long) the *Hirundiner* (coloured like a Swallow, and is but a handfull long) and last of all the *Spitter*, greater then the other. Their biting causeth death within few houres: that of the *Hirundiner* is sudden, of the *Spitter* somewhat slower, beginning first with a dimnesse or trouble in the eyes, then with a swelling in the face, after that it proceedeth to a deafnesse, and last of all it bringeth death.

Cælius Rhodiginus writeth that the Kings of Egypt did wear the pictures of Aspes in their crowns, whereby they signified the invincible power of principalitie in this creature, whose wounds cannot easily be cured; making it thereby an embleme of the power and wrath of a King: and the priests of Egypt and those of Ethiopia did likewise wear very long caps, having towards their top a thing like a navel, about which were the forms of winding Asps; to signifie to the people, that those who resist God and the King, shall perish by unresistable violence. *Topsell.*

The Chameleon.

The *Chameleons* are admirable for their aierie substance, and for the changeablenesse of their colours; or (if you will) for their aierie sustenance, although they sometimes hunt and eat flies. He is of the form and greatnesse of a Lizzard, but hath higher legs: his ribs joyn in his bellie as in fishes, his muzzle is long, and his tail small towards the end, and turning inwards; his skinne is rough, his eyes hollow, and his nails crooked: and when he moves himself, he crawleth slowly like a Tortoise. See *Plin.* in his 8 book, chap. 33.

His tongue is almost half a foot long, which he can dart forth as swiftly as an arrow shot from a bow; it hath a big knot on the tip thereof, and is as catching and holding as glue; which when he darteth forth, he can fasten

to

to the Grasse-hoppers, Caterpillers, and Flies, thereby drawing them down into his throat.

He changeth into all and every colour, excepting white and red; whereof there be divers opinions: some think that he changeth through fear; but this is not like, for though fear alter the colour, as we, when we are afraid, wax wan and pale, yet it will not change the bodie into every colour: others think that by reason of his transparencie he taketh colour from those things which are near him, as the fish called *Polypus* taketh the similitude of the rocks and stones, where he lieth to deceive the fish: and some again joyn both together, for the Chameleon being in fear, swelleth by drawing in the aire, and then his skin being thereby pent, is the smoother, and the apter to receive the impression of the colours of things objected; agreeing in this to that of *Aristotle*, saying, that his colour is changed being pust up with wind. But be the cause from whence it will, it affordeth a fit embleme or lively representation of flatterers, and time-servers, who fit themselves for all companies, times, and occasions, flattering any one, thereby to make fit use of every one.

Why the Chameleon changeth colour.

An embleme against flatterie.

The *Lizzard* is a little creature much like the Evet, but without poyson, breeding in Italy and in many other countreys; the dung of which beast cleareth the sight and taketh away spots in the eye: the head thereof being bruised and applied, will draw out a thorn or any other thing sticking in the flesh.

The Lizzard.

The *Salamander* is a small venimous beast with foure feet, and a short tail; it doth somewhat resemble the shape of a Lizzard, according to *Plinie, lib.* 10. *cap.* 67. And as for his constitution, it is so cold, that (like ice) if he do but touch the fire, he puts it out. They be common in India, in the isle of *Madagascar*; as Mr *Purchas* alledgeth, where he treateth of the creatures, Planets, and fruits of India.

The Salamander.

The conclusion of the first Section.

But stay it is time to stop: I know not how to mention every thing; and yet there is nothing which is not worthy admiration. I made (I must confesse) as much haste as I could, and yet methinks I see both these, and thousands more, runne from me flocking all together, as if they meant to dance attendance now on Mans creation; and not onely shew to him their due obedience and humble welcome into the world, his stately palace, but also wait to have their names according to their natures. For *whatsoever Adam called every living creature, that was* (saith Moses) *the name thereof.*

Gen. 2. 19.

Let us now then come to him, for whose sake all things else were made: for God made the world for Man, and Man for himself. It was therefore a daintie fancie of* one, who brought in the World speaking to Man after this manner. *Vide homo, dicit Mundus, quomodo amavit te, qui propter te fecit me. Servio tibi, quia factus sum propter te, ut servias illi qui fecit & me & te; me propter te, & te propter se. See oh man (saith the World) how he hath loved thee, who made me for thee. I serve thee, because I am made for thee, that thou maist serve him who made both me and thee; me for thee, and thee for himself.* This I will therefore adde,

* Hug. in didasc. lib 1.

Herbs cure our flesh: for us the winds do blow,
The earth doth rest, heav'n move, and fountains flow.
United waters round the world about
Ship us, new treasures, kingdomes to find out.
The lower give us drink; the higher meat,
By dropping on the ground nigh parcht with heat.
Night curtains draws, the starres have us to bed
When Phebus sets, and day doth hide his head.
One world is Man, another doth attend him;
He treads on that which oftimes doth befriend him.
Grant therefore (Lord) that as the world serves me,
I may a servant to thy greatnesse be.

Sect.

Sect. 2.

The creation of Man, being created male and female, and made according to the image of God: together with the institution of Marriage, and blessing given to that estate.

THough Mankind were the last, yet not the least. God onely spake his powerfull word, and then the other creatures were produced: but now he calls a counsell, and doth consult, not out of need, but rather to shew the excellencie of his work; or indeed, to shew himself: he speaks not therefore to the Angels but the Trinitie, saying, *Let us make man:* Wherein the Father, as the first in order, speaketh to the Sonne and holy Spirit: and the Sonne and Spirit, speak and decree it with the Father: and the Father, Sonne, and holy Ghost, all Three in One, and One in Three, create a creature to be the other creatures lord. He was therefore the last, as the end of all the rest; the last in execution, but first in intention; the Map, Epitome, and Compendium of what was made before him.

Three worlds there are, and Mankind is the fourth: The first is Elementarie; the second a Celestiall world; the third Angelicall; and the fourth is Man, the little world. In the first is *ignis urens, a burning fire:* and this in the heavens, is *ignis fovens, a nourishing* and *quickning fire:* but in those creatures above, seated in the supercelestiall world, it is *ignis ardens, & amor Seraphicus, an ardent, burning, and Seraphicall love:* and in the fourth are all these found at once. For first, as mans bodie is compounded of the Elements, he hath his share of that warm fire in him. The influence of the Planets working on him, doth likewise shew the second. And for the third, their hearts who burn within them, do declare it.

Neither

Neither was he made like other creatures, with a groveling look, or downward countenance, but with an erected visage beholding the heavens, and with lordly looks well mixt with majestie.

He hath a bodie whose members are either *Principall* and *Radicall*, or else *Lesse Principall* and *Officiall*.

The spirits heart, liver, brain, arteries, veins, and nerves.

His heart, liver, and brain, contain the vitall, naturall, and animall spirits; and these are carried by the arteries, veins, and nerves. The arteries carrie the vitall spirits from the heart. The veins carrie the naturall spirits from the liver, giving nourishment to every part. And the nerves carrie the animall spirits from the brain, being spirits for sense and motion, and therefore called *animall spirits*: howbeit, the motive nerves spring from the marrow in the back; and the sensitive come from the brain.

The veins and the arteries go togethar.

Also know, that under every vein is an arterie: for wherosoever there goeth a vein to give nutriment, there goeth an arterie to bring the spirit of life. Neither is it but that the arteries lie deeper in the flesh then the veins, because they carrie and keep in them more precious blood then the veins keep; and are therefore, not onely further from outward dangers, but clothed also in two coats, whereas they veins have but one. Whereupon it is no hard thing to distinguish between these two vessels of bloud, if we can but remember that the arterie is a vessel of bloud spirituall or vitall; and the vein, a vessel of bloud nutrimentall: for (as I said before) the veins have their beginning from the liver, bringing from thence nutritive bloud to nourish every member of the bodie.

Passions have their seat in the heart.

Moreover, his heart is the seat of all passions; as in one instance may suffice: for being transported with fear, we call back the bloud to the heart, as to the place where fear prevaileth, the bloud going thither (as it were) to comfort and cherish the heart. And whereas it may

may seem that our anger is seated in the gall, love in the liver, and melancholie in the splene: it is answered, that those humours placed in the gall, liver, and splene, are not the seat of the passions and affections; but they are the occasion whereby the passions are stirred up: as the abundance of bloud in the liver, stirreth up the passion of love, which nevertheless is placed and seated in the heart: and so of the rest.

The humours stirre up the passions.

And again, seeing the vitall spirits proceed from the heart, it cannot be denied, but that this member liveth first, and dieth last.

The heart liveth first & dieth last.

The head.

And as the heart was the seat of all the passions, so the head is a seat and place for all the senses, except the touch; for that is not onely in one place, but in all and every place, being spread quite through the whole bodie or isle of man.

The eyes.

The eyes are the windows of the bodie; and albeit a man have two eyes in his head, yet he receiveth but one sight at once, because the optick nerves meet both in one.

The eares.

The eares be like certain doores, with Labyrinthicall entries, and crooked windings: and here again, although the eares be two, yet a man can heare but one sound at once, because his *acoustick* nerves (like to the optick nerves) meet both in one.

The tongue.

His tongue discerneth tastes: and albeit he have two eyes, and as many eares, yet his tongue is single and alone. A man should therefore heare and see more then he speaketh; and when he speaketh, not wrong his heart and secret thoughts, by uttering words with a double tongue: for *bilinguis* is more then God made him; and double tongues shall be rooted out.

The lungs.

Besides, the lungs be the bellows of the voice, and are seated close to the heart; to teach us, that speech ought to be the interpreter of the heart, and not that a man may speak one thing and think another.

The

The nose.

The nose serveth not onely as a gutter for the excrements of the brain to flow and passe through, but also for a pipe of respiration to give and take our living breath, and to conduct the aire, and odoriferous smells, up to the brain, for the conservation and recreation of the animal spirits.

The hand.

When the head is in danger, the hand casts it self up to save it. And in giving hands to man, the speciall providence of God is to be marked: for he hath made him to take his meat with his hand, and hath not left him to gather and take it up with his lips, as the beasts do; because that would be a means to hinder his speech by thickening his lips: as experience teacheth in those, who either by nature, or by accident, have thick swollen lips causing them to speak in the mouth, uttering their words very badly, and indistinctly. Neither could there be so many quick conceits of the mind, or curious inventions of sundry artists, brought to perfection, without such an instrumentall help as the hand.

The feet.

The feet be the bases of the bodie, carrying man like a lordly creature, with his face from earth, and eyes to heaven; that he might thither strive to come at last, where he inhabiteth who gave him these, and all his other members else, which now I cannot stand to dilate upon at large. And when he had them all, and was framed out like a curious piece, *God breathed in his nostrils the breath of life, and man became a living soul:* he then took his second part, when his first was finished, neither was that second made till then: for in the infusion it was created, and in the creation it was infused, to be the dweller in that house built out of clay, and reared from the dust.

The soul.

How man was made according to Gods image.

And in this last piece, God stampt his image: for it consisted not in the figure of the bodie any otherwise then as the organe of the soul, and in that regard being a weapon

weapon with it unto righteousnesse, it had some shadow thereof. For, to put all out of doubt, the Apostle sheweth how we are to understand the image of God in man; in one place speaking thus, *Which after God is created in righteousnesse and true holinesse*, Ephes. 4. 24. And in another place, *Put on the new man, which is renewed in knowledge, after the image of him who created him*, Coloss. 3. 10. By which it appeareth that this image consisteth, not so much in any resemblance between the substance of the soul and the essence of God (though both be immortall) nor yet in the naturall faculties thereof, as of understanding, will, and memorie, taken as emblemes of the Trinitie; but in the knowledge and illumination, holinesse and justice of the soul, which are now wrought in man by grace, and then were given by creation. For that image is now lost, and cannot be had till it be renewed: but the substance of the reasonable soul, with the naturall faculties and powers thereof are not lost, therefore therein is not expressed this image according to which mankind was made. Mankind, and not man alone: for Moses addeth, that *male and female created he them*; to shew, that woman as well as man, was partaker of the same image: the last that had it, and yet the first that lost it; for though she were the last in creation, yet the first in transgression as the Scripture speaketh.

Woman made according to the image of God, as well as man.

But perhaps you will think the Apostle denieth this, saying, *The man is the image and glorie of God, but the woman is the glorie of the man.* In which it must be considered, that the Apostle denieth not the woman, as she is a creature, to be made in the image of God: but speaking as she is a wife, and considering of them by themselves, he then is more honourable and must have the preeminence; in which, the woman is rightly called the glorie of the man, because she was made for him, and put in subjection to him.

1. Cor. 11. 7.

How woman is the glorie of the man.

A

Quarl. upon Est: ier, Med. 3.

A womans rule should be in such a fashion,
Onely to guide her houshold, and her passion:
And her obedience never's out of season,
So long as either husband lasts, or reason.
Ill thrives the haplesse familie, that shows
A cock that's silent, and a hen that crows.
I know not which live more unnaturall lives,
Obeying husbands, or commanding wives.

But to come more nearly to the creation of Woman; she was made whilest Adam slept: For when he had named the beasts according to their natures, he was cast into a sleep: and, that God might find a help meet for him, he takes a help out of him; performing it rather sleeping then waking, that neither Adams sight might be offended, in seeing his side to be opened, and a rib taken forth, nor yet his sense of feeling oppressed with the grief thereof: and therefore it is said, *God caused*, not a *sleep*, but *an heavie sleep to fall upon man, and he slept.* Which in a mystery signified that deadly sleep of the second Adam upon the crosse, whose stripes were our healing and building up again, whose death was our life, and out of whose bleeding side was by a divine dispensation framed his Spouse the Church.

It was then from the side of Man that Woman came, builded up out of a rib taken from thence: not made out of any part of his head, which (if we seek the meaning in a mystery) shews that she must not overtop or rule her husband: nor yet made out of any part of his foot, to shew that man may not use her as he pleaseth, not trample or contemne her: but made out of a rib, taken from his side, and near his heart, that thereby he might remember to nourish, love, and cherish her, and use her like bone of his bone, and flesh of his flesh.

And

And being thus made, she is married to Adam by God himself, who brought her unto him, to shew (saith *one) the sacred authoritie of marriage, and of parents in marriage: a mutuall consent and gratulation followeth likewise between the parties, lest any one should tyrannically abuse his fatherly power, and force a marriage without either love or liking. And thus are two made one flesh; in regard of one originall, equall right, mutuall consent, and bodily conjunction.

*Purch. Tom. 1. lib. 1. cap. 3.

Flesh of his flesh, and bone made of his bone
He framed woman, making two of one.
But broke in two, he did anew ordain
That these same two should be made one again:
Till singling death this sacred knot undoe,
And part this new-made one, once more in two.
Yea since of rib first framed was a wife,
Let ribs be Hieroglyphicks of their life.
Ribs coast the heart, and guard it round about,
And like a trustie watch keep danger out;
So tender wives should loyally impart
Their watchfull care to fence their spouses heart.
All members else from out their places rove,
But ribs are firmly fixt and seldome move:
Women (like ribs) must keep their wonted home,
And not (like Dinah that was ravisht) rome.
If ribs be over bent, or handled rough,
They break; if let alone, they bend enough:
Women must (unconstraind) be pliant still,
And gently bending to their husbands will.
The sacred Academy of mans life,
Is holy Wedlock in a happy wife.

Quarl. ibid.

And being thus made and married, they are blessed with the benediction of increase and multiplie: and

and were without doubt a very glorious pair, and goodly couple, having neither fault to hide, nor shame: and yet not so much glorious in the ornaments of beautie (which made them each to other amiable) as in the majestie and sovereigne power ingrafted in them, to cause the creatures with an awfull fear and respective dread, come gently to them, submitting like subjects to their King. For (as one truely speaketh)

Quarl. upon Esther, Med. 3.

——— Him he made
The Sov'reigne Lord of all; him all obey'd,
Yielding their lives (as tribute) to their King;
Both fish, and bird, and beast, and every thing.

Naked these couple were, but not ashamed; and yet not impudent or shamelesse creatures: for shame is the fruit of sinne; and therefore before sinne entred, this nakednesse of their bodies shewed the nakednesse and simplicitie of their minds. All which continued, till the sly envies of subtill Satan buzzed in their eares a cunningly deceiving note, and tainted their eyes with curiositie. For the fairnesse of the Apple helpt to hatch the foulnesse of the fault, gave longing to the palate, and action to the hand, to reach and convey it to the curious taste; and yet the taste could not then discern, how death and it went down together.

And now for the day of Adams fall: it is doubted by some whether it were on the day of his creation, or not rather some dayes after. But in all likelyhood it fell not out later than the cool of this very day whereon he was made.

For first, Satan was a murderer from the beginning, and therefore he delayed no time to purchase mans miserie.

Secondly, it was the sixth day that man was created, even as on the sixth day he was redeemed. By which it appeareth that he fell on the very day of his creation. Whereupon

upon * Theophylact maketh this observation, saying, *Sextâ die homo est conditus, qui et sextâ horâ de ligno comedit: Sextâ quoque die et sextâ horâ Christus cruci est affixus: Quâ igitur horâ Dominus hominem condidit, eâdem et lapsum curavit.* By which he meaneth, that as man was formed the sixth day, and did eat of the tree the sixth houre: so Christ reforming man, and healing the fall, was fastened to the tree the sixth day and the sixth houre. And hence also came that common saying concerning Adam, that* *In one and the same day he was formed and deformed,* not continuing in righteousnesse, and true holinesse untill the Sabbath: for then (as some observe) he would have performed the ordinances of the Sabbath, which was to have eaten of the tree of life, and so have lived for ever, being never guiltie of that fall whose ach even yet the sonnes of Adam feel.

*Upon Math. chap. 27.

* Brought. concent.

Thirdly, and surely Moses making mention of many times, would never have omitted this time of the fall, except it had been presently after the Creation. Credrenus therefore, another Greek writer, saith, that Adam fell the sixth day of the first week.

Fourthly, besides it must necessarily be granted that Adam fell before ever he knew his wife: otherwise Cain had been conceived without sinne, because presently after the Man and Woman were made, God said, *Increase and multiplie*; as in Genesis 1. 28. is manifest; but it is a thing not to be imagined that Cain was conceived without sinne, neither is it true that Adam accompanied with his wife, untill after he was cast out of Paradise, as farre as I can find: Nor doth S. Austin but say, that the Woman straitway after her Creation, before she accompanied with Adam, became into the transgression; otherwise Cain had been conceived without sinne. Eve therefore and Mary may well be compared together, as thus: Eve being a Virgin, hearing the words of the ser-

pent, and believing them, brought forth death: the Virgin Mary hearing the words of the Angel, and believing them, brought forth life; as Chrysostome speaketh. Such is their resemblance; and it very fitly serveth to teach us that the fall was soon after the Creation, even whilst Eve (as well as Mary) was a Virgin.

Fifthly, to which purpose that place in the nine and fortieth Psalme, at the 13. verse, is very congruous, *viz.* that Adam lodged not one night in honour. For so, saith a Doctour, do the words signifie, if they be properly translated. As for example, the word (saith he) is *lun*, which signifieth to lodge or stay all night: which by divers of the Rabbins is expounded of Adam, who continued not one night in Paradise, but fell on the self same day of his Creation: which for the time of the yeare seems to be no further from the Spring, then the Promise of Christ was after this fall.

Dr Willet upon Genes. chap. 3. quest. 31.

Finally, the bare narration sheweth, that no famous action went between the Commandment and the Fall. And therefore in all likelihood it was on Friday, the sixth day of the first week: which seems to be on the 22 day of Aprill, the Sun then entring into Aries, and giving beginning to the Spring, even as Christ was then promised for the quickning and reviving again of Man-kind, who also about the same time of the yeare did actually shed his bloud, and thereby paid the price of Mans Redemption.

And now after this time of Adams fall, both he and his posteritie (for a good while together) had many years of life: the longest liver was Methusalah; and the shortest, of any before the Floud, was Lamech. Adam had nine hundred and thirtie years, which wants so much of a thousand as is the ordinarie term of a mans life in these latter dayes. And note that when this first Father died, Seth was 800 years old, Enos 695, Kenan 605, Mahalaleel,

halaleel 535, Jared 470, Henoch 308, Mathusalah 243, and Lamech 56. Note likewise that about such time as the said Adam died, the Vernall Equinox was ascended to the 14 day of Aprill, which at the time of his Creation was (as hath been said) about the 22 of the same, and is now about the 10 of March. And as concerning Evah, if it be true which some have written, she lived beyond the age of her husband, by the space of tenne whole years.

Alsted. ex Mar. Scoto.

But were not these years of theirs shorter then ours? I answer, no. And yet upon such a supposition of being shorter, three strange opinions have been broached. 1. Some have thought that the years of the ancient Patriarchs were of no longer continuance then one of our Lunar momthes: grounding this as an observation agreeable to the practice of the Egyptians, who in times past are supposed to have reckoned thus. 2. Others say that three of our Moneths made up with them a full and compleat yeare: by meanes whereof one of our years should jump just with foure of theirs. 3. And a third fancie is, that tenne years in those times, were no longer then one yeare now.

But that all these are weak and childish thoughts shall well appear. For

First, if each severall Moon, accounted from one conjunction to another, made up a full and compleat yeare, then it must needs follow that men in this present age, when the world is known to be old, do live longer then in those dayes when all things were in their full strength: which cannot be; because the condition of their bodies was not then decayed, nor the aire corrupted, nor intemperance used, nor the fruits of the earth of a feeble nourishment: all which are the friends and companions of a long-lasting life. And such friendly companions do we want, but they enjoyed them all. For first Adam was the

The first opinion refelled.

immediate work of God; and being come (as it were) newly from the shop of his Creator, he could not be like an house built of rotten timber or mouldring stone, but of a farre stronger constitution then this weak age affords. And therefore he begat no such Pygmies as are now, whose strongest ones are in a manner but as reeds compared to the Cedars of those times, whose bodies were never wasted with succession of sicknesses, nor weakned with diseases, but very well able to continue a long time, yea and well armed to resist such few things as were then contrarie to health. For there was a great gap of time sure from the dayes of Adam to the dayes of Galen: and yet I find it witnessed by Authours, that in late times, no longer ago then the dayes of * Galen, men were of such able bodies that they would ordinarily bleed to the value of six pound weight; whereas now, six or eight ounces (saith a learned Knight in his Historie of the world) is (for the most part) found to be sufficient: a great argument to prove the strength of their bodies which have been before us, and the weakneſse of ours. Secondly in the worlds first age they had a thinne and pure aire, not as then corrupted with vapours or terrene Exhalations, such as after times were pestred with, when once the Floud had sopt the earth and drenched it with overflowings. And thirdly, their manner of life and education differed much from ours; which must needs prove theirs longer. For their tender infants were not so tenderly brought up: wastfull riot was a stranger to them, and mixture of meats as then unknown; by means whereof Nature was never oppressed with over-weightie burdens, nor forced to reel and stagger with her load. Gula made then no way for Galen, nor Bacchus for Esculapius; which now in truth we cannot say: nor is there length of dayes to such as these; for as *plures pereunt gulâ quàm gladio*, so even the

* He flourished about the yeare of our Lord 140.

the earth it self is oftentimes a friend to cover the faults bold Empericks commit. And fourthly the fruits of the Earth were much more nourishable and healthfull before the Floud then afterwards: For through the salt Waters of the great Deep the Earth became, not onely lesse fertil then before, but also the fruits of the ground were much infeebled in their vigour, and made more unapt for sustenance.

All which considered, there can be no possibilitie that our lives should be either as long or longer then theirs: and yet they cannot but be so, if the space between one Conjunction of the Moon and another be the just length of their yeare. As for example:

Methusalah was the longest liver of any one amongst them, and his years are recorded to be 969: which number will amount but to foureſcore of our years and nine moneths, if we admit of such a Lunar reckoning. Again, Adam lived nine hundred and thirtie years: which nine hundred and thirtie will make but 77 and some odde dayes for the whole time of Adams life. Further, Seth lived 912 years; which 912, by this means, will be but seventie and six. Enos had 905; which make but 75 and five moneths. Kenan had 910, which make but 75 and tenne moneths: and so proportionably of the rest: By which it appeareth that not any of the Patriarchs (except Mathusalah) could attain to 80 years; beyond which many in our dayes have lived: yea and by this Lunar reckoning, how old I pray you were they when they begat their Children? surely even Children themselves; as afterwards shall better appear.

But secondly (sith one moneth will not) let us see whether three moneths will serve them for a yeare: For such is the phancie of some, which is every jot as bad a tenet as the other. For did not the Ark rest it self upon the Mountains of Ararat the seventh Moneth, on the seventeenth

The second opinion refelled.

Gen. 8. 4. 5. See also vers. 14.

venteenth day of the Moneth? And also, did not the Waters decrease untill the tenth Moneth; upon the first day whereof the Mountain tops appeared? Which being so, they are soon answered whose idle brains doat about either one Moneth, or three Moneths, in one of the Patriarchs years: for we see, not onely the Seventh Moneth, but the Tenth Moneth mentioned: and not onely the first day of a Moneth, but the Seventeenth day also. And indeed, though it were frequent among the Jews to reckon their Moneths by the course of the Moon; yet it is plain enough, that they had also a yeare of dayes, consisting of twelve Moneths, according to the course of the Sunne. Whereupon I may not omit what is observed by Expositours; namely, that a yeare hath the name in Hebrew from *shanah*, signifying a *Changing* or *Iteration*; which is in regard of the Sunnes returning, after a years end, to the same point of Heaven where it first began. And as for the circuit of the Moon, which commonly we tearm a Moneth, it is derived (say they) of another word signifying to *Renew*; because, in that space, the Moon is again renewed. Neither is it found in any place of Scripture, that these names are the one of them taken to signifie the other; but by the one is meant a yeare, and by the other a Moneth.

Gib. on Genes. chap. 5 quest. 2. Ainsworth on Gen. chap. 2 ver. 14.

The third opinion refelled.

Thirdly concerning such as would have tenne of the ancient years as long, and no longer then one of ours. It is answered that these dreamers bring in as drie an assertion as the former. For might this conjecture passe for current, then men should be capable of Generation at seven, eight, nine, and ten years of age; nay some must beget children at little above six years old. As for example, Seth is said to be 105 when he begat Enos: which 105 (by this account) amounts but to tenne years and six Moneths. Again, Enos begat Kenan at 90: which number by the former reckoning, will make but nine; because there are but 9 times tenne in 90. And as for Kenan

Kenan he could be but 7 when he begat Mahalaleel. And Mahalaleel but six and an half, when he begat Jared: and of like age also must Henoch be when he begat Methusalah. All which are but grosse absurdities: and ridiculously have they erred whose follie hath been either the hatchers or nourishers of these opinions.

Let it therefore be that Adams time of life was 930 years, consisting of 12 Moneths, measured by the course of the Sunne through the 12 signes of the Zodiack, as we measure now; and when these were ended, then he died: but had he not sinned, there had been no death to meddle with him; both bodie and soul had been translated from earth to heaven, as the ancient Fathers have declared. And perhaps one other cause, why he lived so long after his Fall, was by reason of the relicks of that naturall immortality, which was in him before the Fall. For (as one speaketh very worthily) if the Egyptians could embalm bodies artificially, that they could continue without corruption for so many hundred years; how much more could God make Adam's bodie to have continued without corruption naturally, if he had stood in innocencie? Wherefore I will now conclude, and concluding say,

*God * saw the works which he had made,*
And good he found them all:
If therefore now they faint or fade,
'Tis cause Man caught a fall.
*For ev'ry creature * groneth deep;*
A change they wish to see.
They travail, seek, they want and weep,
Till sonnes of God be free.

*Gen. 1. 31.

*See Rom. 8. 19. 20. 21. 22. 23.

For

For then they likewise freedome have,
No longer kept in pain:
Come therefore quickly (Lord) we crave,
Renew this world again:
And in its kind, it being free,
Will praise thy name as well as we.

FINIS.

Soli Deo Gloria.

A Postscript to the Reader.

Gentle Reader,

HAving in the first chapter of this book, not onely spoke of the worlds ending, but also of the manner how, and of the new heaven and the new earth, which (according to Gods promise) we * expect; I thought it not amisse further to explain this matter to thee in a word or two, as followeth; that thereby thou maist the better understand when the time of this change beginneth.

* 2. Pet. 3. 13.

In Revelat. 21. 1. thus we reade; *I saw a new heaven and a new earth: for the first heaven and the first earth were passed away.*

Now note the time; namely, That they passed not away till the Judge sate upon the white throne, after the expiration of the Thousand years mentioned in the twentieth chapter of the same prophesie, at the very end of the world. For, at the eleventh and twelfth verses of the said twentieth chapter, all being finished concerning the thousand years, the warre of Gog and Magog, and casting the devil into the lake of fire and brimstone, this is shewed to be next; namely, that the great white throne is set, the Judge appeareth, the heaven and earth flies away, and the dead both great and small are raised to stand before God.

And therefore the new heaven and the new earth, which (according to Gods promise) we do expect, are not to be till the end of the world. They are mistaken therefore who say they are to be within the compasse of the thousand years when the Jews are converted, and the Mar-

tyrs raised from the dead to reigne with Christ: For by these two texts it appeareth, that they are not to be till the time of the generall Resurrection, when all without difference shall arise.

Moreover, I request thee (good Reader) to correct with thy penne some faults escaped in the number of figures, which I would should be carefully amended: As in pag. the 17, for the 19 yeare of Nebuchadnezzar, reade the 8 yeare of Nebuchadnezzar: and for 471, reade 458. Then, in pag. the 36, for 3948, reade 3931. pag. 352 *for the* 16 Provinces. *read* the 17 Provinces. and pag. 65 line 20 *read* as the making &c.

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